

## Tárgytematika / Course Description

### Engineering Structures 2

EKNB\_SETA013

**Tárgyfelelős neve /**

**Teacher's name:** dr. Szép János

**Félév / Semester:** 2020/21/2

**Beszámolási forma /**

**Assesment:** Vizsga

**Tárgy heti óraszám /**

**Teaching hours(week):** 2/2/0

**Tárgy féléves óraszám /**

**Teaching hours(sem.):** 0/0/0

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### OKTATÁS CÉLJA / AIM OF THE COURSE

Reinforced concrete structures, elements, behavior, modelling, drawing

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### TANTÁRGY TARTALMA / DESCRIPTION

1, lec. Scope of application of reinforced concrete structures, tension in rc. elements

prac. Tension in rc. elements

2, lec. Behavior of bent-sheared structural elements: Stress states (1st,2nd,3rd) of reinforced concrete structural elements.

prac. 1st, 2nd stress states of reinforced concrete

3, lec. Behavior of bent-sheared structural elements: Stress states (1st,2nd,3rd) of reinforced concrete structural elements.

prac. Design and check bent rc. section

4, lec. Compressed reinforced concrete structural elements

prac. Design and check the columns

5, lec. Behavior of bent-sheared structural elements: Shear in reinforced concrete.

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- prac. Structural analysis using FEM software
- 6, lec. The serviceability limit state of reinforced concrete structures,  
deflection and crack width.
- prac. SLS checking
- 7, EDUCATION BREAK
- 8, lec. Design, types and sizing of reinforced concrete slabs
- prac. Slab design
- 9, lec. Structural design of reinforced concrete column bases, conceptual sizing  
principles, punching design
- prac. Punching design
- 10, lec. EDUCATION BREAK
- 11, lec. Lateral resistance of reinforced concrete buildings, system design,  
calculation, design and sizing of reinforced concrete stairs
- prac. Slab drawing
- 12, lec. Design, properties and conceptual design of reinforced concrete frame structures
- prac. Prefabricated rc. systems.
- 13, lec. Earthquake resistance of structural concrete building, structural design
- prac. structural analysis using FEM software
- 14, lec. Fire resistance of reinforced concrete, fire design

## **SZÁMONKÉRÉSI ÉS ÉRTÉKELÉSI RENDSZERE / ASSESSMENT'S METHOD**

The exam consists of three stages. In the first stage, the candidate must complete a worksheet. The worksheet contains in advance for approx. 4 of 20 simple (minimum) questions that need to be answered accurately. An incorrect answer to any question will result in a re-examination. In the second stage of the exam, you must answer a written exam question on a comprehensive topic. Exam questions are usually the same as the title and topic of each lecture. The third stage starts with a grade offer based on the total score of the semester assignment and the score of the written part of the exam (max. 100 points). If a grade cannot be offered based on the candidate's performance (eg insufficient written response) or the student does not accept the offered ticket, the examination will be continued orally. A total of 200 points can be obtained in the exam, the minimum score to be achieved is 111 points

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## **KÖTELEZŐ IRODALOM / OBLIGATORY MATERIAL**

[Prab Bhatt](#), [T.J. MacGinley](#), [Ban Seng Choo](#) : Reinforced Concrete Design to Eurocodes: Design Theory and Examples, Fourth Edition 4th Edition, CRC Press; 4th edition (December 18, 2013)