

I. Tantárgyleírás**1. Alapadatok***1.1 Tantárgy neve***REINFORCED CONCRETE BUILDINGS***1.2 Azonosító (tantárgykód)***BMEEOHSA-A2***1.3 Tantárgy jellege*

Kontaktórák tanegység

1.4 Óraszámok

Típus	Óraszám / (nap)
Előadás (elmélet)	3
Gyakorlat	1

1.5 Tanulmányi teljesítményértékelés (minőségi értékelés) típusa

Vizsga

1.6 Kreditszám

5

1.7 Tárgyfelelős

név	Dr. István Haris
beosztás	Egyetemi docens
email	haris.istvan@emk.bme.hu

1.8 Tantárgyat gondozó oktatási szervezeti egység

Hidak és Szerkezetek Tanszék

1.9 A tantárgy weblapja<https://epito.bme.hu/BMEEOHSA-A2><https://edu.epito.bme.hu/course/view.php?id=442>*1.10 Az oktatás nyelve*

magyar és angol

1.11 Tantárgy típusa

Kötelező az építőmérnöki (BSc) szak Magasépítési specializációján

1.12 Előkövetelmények

Strong prerequisites:

- RC and Masonry Structures (BMEEOHSAS42)
- Timber Structures (BMEEOHSAS44)

1.13 Tantárgyleírás érvényessége

2020. február 5.

2. Célkitűzések és tanulási eredmények*2.1 Célkitűzések*

The goal of the subject is to learn the design specialties of the constructions, constructional elements applied in building constructions. The students will study about monolithic and prefabricated prestressed structures, stiffening systems of high rise buildings, glued laminated structures of timber halls.

2.2 Tanulási eredmények

A tantárgy sikeres teljesítése után a hallgató

A. Tudás

1. knows the terminology of building constructions,
2. knows the action effects on building constructions,
3. knows the steps of design for prestressed constructions,
4. knows the sizing methods of connections in building constructions,
5. knows the formation of different stiffening systems for building constructions, its main features and the basis of sizing.

B. Képesség

1. is able to make sizing models for reinforced concrete building construction and timber structures,
2. is able to determine the loads and effects on building constructions according to the code,
3. is able to size monolithic and prestressed concrete structures according to the code,
4. is able to size structural elements of timber constructions,
5. is able to analyse and design the different global stiffening systems that may also differ in ground plane.

C. Attitűd

1. Extends his knowledge with continuous studying,
2. open to the means of information technology,
3. is striving to know the methods for solution of structural problems,
4. is striving for proper solution of tasks.

D. Önállóság és felelősség

1. Independently performs the solution of tasks in building constructions and solution on the basis of given sources,
2. is open for critics,
3. uses a systematic approach of problems.

2.3 Oktatási módszertan

Lectures Calculation practice, communication written and oral, using IT facilities and techniques, home works prepared independently.

2.4 Részletes tárgyprogram

Week	Topics of lectures and/or exercise classes
1.	Special requirements and formation of high-rise buildings. / Loads and sizing.
2.	Earthquake / Types of reinforced concrete floors. Calculation models. Flat slabs resting on columns.
3.	Prestressing I. / Prestressing II.
4.	Design of prestressed beam I. / Stiffening systems of the buildings. Structural elements of the stiffening systems
5.	Timber halls I. / Timber halls II.
6.	Timber halls III. / Timber halls IV.
7.	Design of timber connections, Glued laminated beams / Frame nodes fire effect.

8.	Timber halls V. / Timber halls VI.
9.	Design of prestressed beam II. / Analysis of the stiffening systems of buildings – Wall stiffness I.
10.	Analysis of the stiffening systems of buildings – Wall stiffness II.
11.	Coupled walls / Co-working of frames and walls
12.	Design of prestressed beam III. / Frames stiffened by masonry infill
13.	Stiffening system, core structures I.
14.	Stiffening system, core structures II., Deep beams.

A félév közbeni munkaszüneti napok miatt a program csak tájékoztató jellegű, a pontos időpontokat a tárgy honlapján elérhető "Részletes féléves ütemterv" tartalmazza.

2.5 Tanulástámogató anyagok

a) Textbooks:

1. Stafford Smith, B. and Coull, A.,: Tall building Structures. Analysis and Design. 1991
2. Zalka K. A.: Structural Analysis of Regular Multi-Storey Buildings
3. Porteous, J and Kermani, A.: Structural Timber Design to Eurocode 5

b) Online materials:

1. Farkas Gy. - Kiss. R.: Reinforced Concrete Buildings
2. Haris I. – Koris K.: Design of prestressed beams

2.6 Egyéb tudnivalók

1. Attendance to lectures is compulsory. The signature and credits from the subject will be refused to students missing more than 6 lectures.
2. Attendance to practical classes is compulsory. The signature and credits from the subject will be refused to students missing more than 3 practical classes.
3. Students are evaluated based on their actual individual performance. Students are required to show evidence of their own knowledge and skills. Submitting a work of others, obtaining or giving unauthorized help (e.g. during an exam or test) cheating and plagiarism in any form is unacceptable. Whoever violate the respective Regulations of the University will be given a failing grade (1), without the possibility of retake and repeat, and will be reported to the Dean's Office.

2.7 Konzultációs lehetőségek

The instructors are available for consultation during their office hours, as advertised on the department website. Special appointments can be requested via e-mail:

huszar.zsolt@epito.bme.hu

Jelen TAD az alábbi félévre érvényes:

II. Tárgykövetelmények

3. A tanulmányi teljesítmény ellenőrzése és értékelése

3.1 Általános szabályok

The assessment of the learning outcomes specified in clause 0. above and the evaluation of student performance occurs via the 3 home works and the exam. First the written part of the exam should be passed. The written part is successful if 42% of the total points is obtained. The oral part can be taken only with a successful written part. That will be successful if its result is above 50%

3.2 Teljesítményértékelési módszerek

Evaluation form	Abbreviation	Assessed learning outcomes
1. homework	HW1	A.1-A.5; B.1-B.5; C.1-C.4; D.1-D.3
2. homework	HW2	A.1-A.5; B.1-B.5; C.1-C.4; D.1-D.3
3. homework	HW3	A.1-A.5; B.1-B.5; C.1-C.4; D.1-D.3
attendance and activity	A	A.1-A.5; B.5; D.1-D.3
written examination	W	A.1-A.5; B.1-B.5; C.1-C.4; D.1-D.3

A szorgalmi időszakban tartott értékelések pontos idejét, a házi feladatok ki- és beadási határidejét a "Részletes féléves ütemterv" tartalmazza, mely elérhető a tárgy honlapján.

3.3 Teljesítményértékelések részaránya a minősítésben

Abbreviation	Score
HW1	10%
HW2	10%
Hw3	10%
Total achievable during the semester	30%
Exam	70%
Sum	100%

3.4 Az aláírás megszerzésének feltétele, az aláírás érvényessége

The signature can be obtained if the student got 50% of all the points in chapter 3.3 available in the semester ($0.5 \times 30\%$). Each homework must be submitted and at least 40% of the points per homework must be achieved. Semester results achieved earlier can be considered retroactively 6 semesters.

3.5 Érdemjegy megállapítása

Grade	Points (P)
excellent (5)	$80 \leq P$
good (4)	$70 \leq P < 80\%$
satisfactory (3)	$60 \leq P < 70\%$
passed (2)	$50 \leq P < 60\%$
failed (1)	$P < 50\%$

3.6 Javítás és pótlás

1 The home work can be submitted on the last day of the replacement week till 16:00 or electronically sent till 23:59 with payment of the fee given in the regulation.

2 The submitted and accepted home work can be repaired free of charge until the deadline given in the 1. chapter.

3.7 A tantárgy elvégzéséhez szükséges tanulmányi munka

Activity	Hours/semester
contact hours	$14 \times 3 = 42$
preparation for the courses	$14 \times 1 = 14$
homework	14
preparation for the examination	80
Sum	150

3.8 A tárgykövetelmények érvényessége

2021. augusztus 26.

Jelen TAD az alábbi félévre érvényes:
