Constructions of Buildings and Structures - BMEEOEMMB61

I. Subject Specification

1. Basic Data

1.1 Title

Constructions of Buildings and Structures

1.2 Code

BMEEOEMMB61

1.3 Type

Module with associated contact hours

1.4 Contact hours

Type	Hours/week / (days)
Lecture	2
Seminar	1

1.5 Evaluation

Midterm grade

1.6 Credits

4

1.7 Coordinator

name	Dr. Annamária DUDÁS
academic rank	Associate professor
email	dudas.annamaria@emk.bme.hu

1.8 Department

Department of Construction Materials and Technologies

1.9 Website

https://epito.bme.hu/BMEEOEMMB61
https://fiek2.mywire.org/course/view.php?id=3577

1.10 Language of instruction

english

1.11 Curriculum requirements

Recommended elective in the Construction Information Technology Engineering (MSc) programme

1.12 Prerequisites

1.13 Effective date

1 September 2022

2. Objectives and learning outcomes

2.1 Objectives

Transmission of knowledge in fields of building and engineering structures and construction methods, which enables successful graduates to solve building construction and structural tasks with a system approach, and has structural knowledge to produce 3D model of buildings and structures and able to carefully evaluate and apply new products, structures, technologies.

2.2 Learning outcomes

Upon successful completion of this subject, the student:

A. Knowledge

1. has fundamental knowledge in the areas of construction, design and implementation of facilities and structures in order to perform design, construction, maintenance, operation, entrepreneurship and authority tasks
2. has knowledge in 3D modelling of built structures
3. knows the interaction between humans and the built environment
4. knows advanced principles and typical solutions for energy-efficient and environmentally friendly construction

B. Skills

1. produces a 3D model of a building or a structural element
2. applies integrated knowledge, contributes to solving multidisciplinary problems
3. is able to collaborate with experts from different trades, understands their points of view, and able to provide appropriate technical solutions to emerging problems
4. is able to provide both approximate and accurate estimation of the expected costs, feasibility, technical performance, aesthetic, functional and social values and impact of a planned facility
5. is able to carefully evaluate and apply new products, structures, technologies

C. Attitudes

1. is open to solve the tasks individually and cooperate with other participants of the project
2. uses the system-based approach for her/his thinking to select an appropriate technical solution which can automatically operate in the long-term and communicate with other IT systems
3. is willing to acquire the ability of self-learning and self-development
4. strives to fulfil sustainable and energy-efficient demands
5. is open to apply new, up-to-date and innovative methods and procedures related to the sustainable construction
6. strives to improve her/his knowledge through continuous learning

D. Autonomy and Responsibility

1. makes responsible professional decisions concerning the design, construction, maintenance, operation, entrepreneurship and authority tasks of structures
2. has a sense of responsibility that corresponds to sustainability, occupational safety and health, environmental protection. Encourages her/his professional team and employees to practice ethically and responsibly
3. takes responsibility for her/his decisions and work as well as for those of the professional team under their supervision

2.3 Methods

Lectures, seminars, consultation in oral and in writing, using IT equipment and techniques, optional tasks carried out individually or in small groups, work organization techniques.

2.4 Course outline

Week	**Topics of lectures and/or exercise classes**
1.	Industrial buildings, hall structures I. Functional and structural characterisation and classification of industrial buildings.
2.	Industrial buildings, hall structures II. Prefabricated reinforced concrete, steel and timber frame structures, secondary load-bearing structures, claddings.
3.	Specific structures of agricultural buildings. Typical supporting frames, boundary walls, retaining walls.
4.	Special structures of public buildings, office buildings I. Functional characteristics, requirements of space dividers.
5.	Special structures of public buildings, office buildings II. Façade systems. Typical dry construction structures for internal boundaries.
6.	Roof structures and coverings for high span buildings, sports facilities. Functional ancillary structures, bleachers, claddings, coverings, sports floors.
7.	Industrialised construction methods: block and panel buildings, prefabricated systems for residential buildings
8.	Special facade constructions, mounted light and heavy facade claddings. Curtain walls with beam-grid supports, paneled and pointly-fixed curtain walls.
9.	Dry construction I. Partition wall systems
10.	Dry construction II. Ceiling and floor systems
11.	Prefabricated buildings, assembled on site, partially or completely prefabricated buildings, modern methods of building industrialisation, modular architecture.
12.	Engineering Structures I. Examples of cooling towers, bridges, retaining walls, basins, shafts, tunnels, hydraulic and environmental structures.

13.	Engineering structures II. Content requirements for design documentation, case studies
14.	Case studies of special buildings and structures

The above programme is tentative and subject to changes due to calendar variations and other reasons specific to the actual semester. Consult the effective detailed course schedule of the course on the subject website.

2.5 Study materials

Online materials:

1. E-lecture notes: CAN BE DOWNLOADED FROM THE DEPARTMENT'S WEBSITE
2. Manuals: DATASHEETS, BOOKS RECOMMENDED ON LECTURES

Mandatory literature:

1. Emmitt, Stephen, Barry's Introduction to Construction of Buildings John Wiley & Sons Inc, 2018, ISBN 9781118977163

Recommended literature:

1. Emmitt, Stephen, Barry's Advanced Construction of Buildings John Wiley & Sons Inc, 2018, ISBN 9781118977101

2.6 Other information

2.7 Consultation

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

This Subject Datasheet is valid for:

Inactive courses

II. Subject requirements

Assessment and evaluation of the learning outcomes

3.1 General rules

The assessment of the learning outcomes specified above in clause 2.2 considers a summarizing mid-term test, the submitted practical tasks, 3 home assignments, taking into account the active participation on the seminars as well.

3.2 Assessment methods

Evaluation form	Abbreviation	Assessed learning outcomes
1 mid-term test (summarizing evaluation)	MT	A.1-A.4; B.2-B.3; C.2; D.1
3 home assignment (continuous evaluation)	HA1, HA2, HA3	A.1-A.4; B.1-B.5; C.1-C.2, C.4; D.1-D.2
Seminars - practical tasks (continuous evaluation)	PR	A.1-A.4; B.1-B.5; C.1-C.2; D.1, D.3
active participation (continuous evaluation)	A	A.1-A.4; B.1-B.2; C.1-C.3, C.4-C.6

The dates of deadlines of assignments/homework can be found in the detailed course schedule on the subject's website.

3.3 Evaluation system

Abbreviation	Score
MT	60%
HA1	10%
HA2	10%
HA3	10%
PR	5%
A	5%
During semester period - Sum	**100%**
Sum	**100%**

3.4 Requirements and validity of signature

The minimum requirement for obtaining a Signature is a passed (2) mid-semester test, and at least a passed (2) mean score considering the three home assignments and the practical sheets. Each Home Assignment must reach passed mark. The final grade is calculated according to clause 3.3 in accordance with the general rules of rounding.

3.5 Grading system

MT, HA1, HA2, HA3, PR, A, are rated with a grade between 1(failed) and 5 (excellent).
For those who fulfil the attendance requirements, the MT, HA and PR grades are determined as follows:

Grade	Points (P)
excellent (5)	80 <= P

good (4)	70 <= P < 80 %
satisfactory (3)	60 <= P < 70 %
passed (2)	50 <= P < 60 %
failed (1)	P < 50 %

3.6 Retake and repeat

1. A second retake for the mid-semester test (MT) is provided on the delayed submission period with a charge.
2. The home assignments can be submitted without a charge on the seminar the week after the normal deadline. The course cannot be accepted with a submission after the delayed deadline.
3. The third home assignment (HA3) and the practical tasks (PR) can be submitted with a charge (amount noted in the policy) on the last day of the delayed submission period until 16:00.
4. The active participation – due to its speciality – cannot be resubmitted or exchanged in any ways.

3.7 Estimated workload

Activity	**Hours/semester**
participation in lectures	14×2=28
participation in seminars	14×1=14
preparation for the evaluation	14
preparation of the home assignments	50
learning the designated notes	14
Sum	**120**

3.8 Effective date

1 September 2022

This Subject Datasheet is valid for:

Inactive courses