Building Construction Study - BMEEOEMAT44

I. Subject Specification

1. Basic Data

1.1 Title

Building Construction Study

1.2 Code

BMEEOEMAT44

1.3 Type

Module with associated contact hours

1.4 Contact hours

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

1.5 Evaluation

Midterm grade

1.6 Credits

3

1.7 Coordinator

name	Dr. Tömböly Cecília
academic rank	Assistant professor
email	tomboly.cecilia@emk.bme.hu

1.8 Department

Department of Construction Materials and Technologies

1.9 Website

https://epito.bme.hu/BMEEOEMAT44
https://fiek2.mywire.org/course/view.php?id=350

1.10 Language of instruction

hungarian and english

1.11 Curriculum requirements

Compulsory in the Civil Engineering (BSc) programme

1.12 Prerequisites

Strong prerequisites:

- Civil Engineering Representation and Drawing (BMEEOEMAT42)

1.13 Effective date

1 September 2022

2. Objectives and learning outcomes

2.1 Objectives

The course addresses the following topics: Effects on buildings, load-bearing wall and skeleton frame type buildings, traditional load-bearing floors, stairs, foundation methods, waterproofing and thermal insulation of building constructions directly contacted with the soil, flat roofs, traditional pitched roofs and roof claddings, façade renders and claddings and also a basic introduction to building services and building physics.
During the semester students will expand their knowledge and develop their skills both through the individual home assignments and through the contact courses where the above-listed topics are discussed.

2.2 Learning outcomes

Upon successful completion of this subject, the student:

A. Knowledge

1. has an overview of the impacts on buildings and of the performance characteristics and the expected requirements of building constructions.
2. (based on previous studies) understands the symbols and principles of technical drawings.
3. knows the different wall types, their construction method and materials, and the different brick bonding types.
4. understands the construction method of skeleton frame buildings, and the main structural members of these structures.
5. has an in-depth overview of load-bearing floors, understands the slabs structural behaviour, their build-ups and the joints with adjacent building constructions in detail.
6. understands how to eliminate or reduce thermal bridges in different structures, e.g. at ring beams and balconies.
7. is aware of the different types of stairways, and their construction and design.
8. has a complex overview of roof trusses, knows the parts of pitched roofs, their drainage and the traditional roof claddings.
9. knows the difference between cold and warm flat roofs, and also the most commonly used buildups.
10. understands the principles of shallow and deep foundations
11. is aware of the tasks of fenestration, and the fenestration related general requirements.

B. Skills

1. uses the principles and symbols of technical drawings.
2. prepares the required drawings, details in the given scale using correct symbols and principles professionally.
3. confidently reads (understands) technical drawings.
4. efficiently uses gathered information for the home assignments (lecture notes, datasheets, internet).
5. can evaluate incorrect design solutions (related to topics of the course), and can provide correct details.
6. uses the technical terms correctly, and can straightforwardly present any topic of the course in word or writing.
7. is able to thoroughly apply and adjust the theoretical knowledge in the drawing tasks.
8. can use the main regulations of energy-conscious and environmentally friendly construction methods in the evaluation of building and building constructions.

C. Attitudes

1. cooperates with other course members and professors.
2. develops his/her knowledge, drawing and communicating skills, and professional vocabulary.
3. aims to construct precise, flawless technical drawings.
4. aims to understand the principals of environmental consciousness and energy efficiency and develops his/her knowledge regarding this topic.

D. Autonomy and Responsibility

1. carries out the specified design tasks/home assignments individually
2. in the case of criticism of his work, he accepts the well-founded critical comments and incorporates them into his further tasks,
3. in certain situations, e.g. in practical classes, cooperating with fellow students in solving tasks,
4. is actively participates in professional discussion or debates,
5. expresses her/his opinion with justification.

2.3 Methods

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

2.4 Course outline

Week	**Topics of lectures**
1.	Impacts on buildings, the relationship between buildings and building constructions. The relation between performance and requirements of building constructions. Load-bearing wall type structures.
2.	Brick bonding
3.	Load-bearing floor slabs, and ring beams, balconies, the thermal break of balconies
4.	Load-bearing floor slab details, joints, slab design
5.	Types of skeleton frame buildings, modern structural systems and materials
6.	Flat roof build-ups, drainage, and waterproofing materials
7.	Types of pitched roofs, structural characteristics, drainage
8.	Principles of foundations, main foundation methods
9.	Basics of building services. Building physics and energy performance (legislations, utilizing solar energy, etc.)
10.	Traditional roof claddings
11.	Stairs: structural variations

12.	Façade renders and claddings, build-ups, mounted facades
13.	Modern fenestration, classification of fenestration, types and performances
14.	Summary of the discussed topics

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

1. E-lecture notes: CAN BE DOWNLOADED FROM THE EDUCATIONAL FRAMEWORK (edu.epito.bme.hu)
2. Manuals: DATASHEETS, BOOKS RECOMMENDED ON LECTURES

2.6 Other information

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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.

This Subject Datasheet is valid for:

2023/2024 semester I

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 control test carried out through the moodle system, a mid-term test, the submitted practical sheets, 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.8; B.1-B.3, B.5-B.8; C.3; D.5
2 control test (placement test)	CT1,CT2	A.1-A.6; B.3, B.6; D.5
3 home assignment (continuous evaluation)	HA1,HA2,HA3	A.1-A.11; B.1-B.4; C.1-C.4; D.1-D.2
Seminars - practical sheets (continuous evaluation)	PR	A.1-A.11; B.1-B.8; C.1-C.4; D.3-D.5

The dates of tests, the handing-out and submission dates of home assignments are detailed in the course schedule on the subject's website.
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	35%
CT1	5%
CT2	5%
HA1	15%
HA2	15%
HA3	15%
PR	10%
Sum	**100%**

3.4 Requirements and validity of signature

Signature cannot be obtained.

3.5 Grading system

MT, CT1, CT2, HA1, HA2, HA3, PR are rated with a grade between 1 and 5.
Requirements of grading are obtaining at least a pass (2) on MT, submitting, and obtaining at least a pass (2) on each home assignment (HA1, HA2, HA3) and submitting and obtaining at least a pass (2) on each GP sheets (GP 1-10). To ensure continuous evaluation, GP sheets must be submitted after each seminar, grading is based on their average. Consultation with the home assignments (scheduled by the instructor) is recommended.
Submitting a home assignment or GP sheet does not automatically mean a pass.
The final grade is calculated according to clause 3.3 in accordance with the general rules of rounding. For those who fulfil the attendance requirements, the MT and CT grades are determined as follows:

Grade	Points (P)

excellent (5)	90<=P
good (4)	80<=P<90
satisfactory (3)	65<=P<80
passed (2)	50<=P<65
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 penalty fee.
2. Control tests (CT1, CT2) can be retaken once during the study period.
3. The 1st assignment (HA1) and the 2nd home assignment (HA2) can be submitted without a penalty fee on the seminar the week after the normal deadline. The course cannot be accepted with submission after the delayed deadline.
4. The 3rd home assignment (HA3) can be submitted with a penalty fee (amount noted in the policy) on the last day of the delayed submission period until 14:00.

3.7 Estimated workload

Activity	**Hours/semester**
participation in lectures	7×2=14
preparation for seminars	14×0.5=7
participation in seminars	14×2=28
preparation for the evaluation	12
preparation of the home assignments	19
learning the designated lecture notes	10
Sum	**90**

3.8 Effective date

1 September 2022

This Subject Datasheet is valid for:

2023/2024 semester I