

I. Subject Specification

1. Basic Data

1.1 Title

Building Construction I.

1.2 Code

BMEEOEMAS42

1.3 Type

Module with associated contact hours

1.4 Contact hours

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

1.5 Evaluation

Exam

1.6 Credits

3

1.7 Coordinator

| | |
|---------------|--|
| name | Vajnáné Dr. Horn Valéria |
| academic rank | Associate professor |
| email | horn.valeria@emk.bme.hu |

1.8 Department

Department of Construction Materials and Technologies

1.9 Website

<https://epito.bme.hu/BMEEOEMAS42>

<https://fiek2.mywire.org/course/view.php?id=427>

1.10 Language of instruction

hungarian and english

1.11 Curriculum requirements

Compulsory in the Civil Engineering (BSc) programme

1.12 Prerequisites

Strong prerequisites:

- Building Construction Study (BMEEOEMAT44)

1.13 Effective date

1 September 2022

2. Objectives and learning outcomes

2.1 Objectives

During semester work, students gain knowledge on the following topics:

Flat and deep foundations. Underground waterproofing. Panel-type, block-type, pillar-type construction systems. RC., steel and wood load bearing floor systems, stairs, balconies. Modern roofing structures. Non-utilized and utilized roof structures (accessible flat roofs, green roofs). Functional waterinsulation. Chimneys and building ventilation.

2.2 Learning outcomes

Upon successful completion of this subject, the student:

A. Knowledge

1. Knows the geometric rules of flat foundation. Chooses a suitable foundation mode for different conditions. Can choose the waterproofing method that meets moisture and dampness requirements.
2. Sees the importance of waterproofing structures of a raster-type building, and recognizes the possible technology joints.
3. Has an overview of various waterproofing materials. Knows the connection between foundation type and waterproofing, and provides adequate waterproofing protection. Can draw the details of the above mentioned topics.
4. Know the common prefabricated slab systems. Can prepare a slab / floor plan with detail drawings.
5. Understands the static operation of stairs. Is familiar with the turning line design process of a monolithic reinforced concrete stairs. Can choose a suitable cover and railing for the stairs.
6. Can compare traditional and modern roof structures. Has an insight into the design nail plate roof structures, knows its constructional principles.
7. Can systematise flat roofs according to their structures, can apply the principles of drainage design. Is familiar with the applicable materials. Is able to construct sophisticated layer order from an architectural and building physics point of views.
8. Understands insulation properties of industrial roofs.
9. Knows the details of non-passable and passable roofs.
10. Knows the principles of creating balconies and loggias.
11. Knows the details of green roofs.
12. Understands the different types of utilised and technology waterproofing. Can choose the appropriate waterproofing and the suitable layer order according to the water intensity.
13. Has an overview of the design of modern wooden structural buildings.
14. Is familiar with the main constructional features of chimneys and ventilation.

B. Skills

1. Properly interprets design documents (floor plan, section, detail) and catalogues
2. Is able of thoughtful application of theoretical knowledge during a drawing task
3. Edits the tasks, detail drawings, homework tasks properly
4. Recognizes the wrong solutions and suggests a correction
5. Applies vocabulary correctly in oral and in writing
6. Logically thinks over the effects on each structure, the requirements imposed on them. Applies the

general principles of designing structures.

7. Applies knowledge of energy efficiency and environmental awareness of buildings and structures.

C. Attitudes

1. Works with the tutor and students, in order to expand knowledge
2. Expands professional knowledge and professional vocabulary through continuous learning
3. Pursues to make precise sketches and make correct drawings
4. Seeks to understand the principle of energy efficiency and environmental awareness and to expand its knowledge of this subject

D. Autonomy and Responsibility

1. Performs individual production of homework / background work drawings
2. In the case of lecture and student criticism of his work, accepts, improves, and takes into consideration the critical remarks to his / her additional tasks.
3. Is actively involved in the professional debate
4. Explains his opinion with explanation

2.3 Methods

Lectures, seminar works, communication in oral and in writing. IT technology and tools via information gaining and learning.

2.4 Course outline

| Week | Topics of lectures and/or exercise classes |
|-------------|--|
| 1. | Flat foundation and design of related waterproofing |
| 2. | Deep foundation and design of related waterproofing |
| 3. | Small element, block, panel type walls structures |
| 4. | RC. Steel, timber structures, raster type buildings |
| 5. | LB floors, steel structure floors, modern wood |
| 6. | External, internal stairs, timber, steel, RC. structures. Stair geometric design. |
| 7. | Wood roof structures. Substituting roof structures, Engineered roof structures. |
| 8. | Non-passable flat roofs. Materials, classification. |
| 9. | Utilised roofs: terrace roofs |
| 10. | Utilised roofs: green roofs |
| 11. | Utilised water insulation |
| 12. | Modern wood structure buildings. Wall and floor structures. |
| 13. | Chimneys, ventilation. |
| 14. | Summary |

Building Construction I. - BMEEOEMAS42

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

a) Notes / books:

1. Széll László: Magasépítéstan I.-II.
2. Gábor László: Épületszerkezetan I.-IV.

b) Online materials:

1. Lecture material
2. Catalogue material listed during lectures - available online

2.6 Other information

2.7 Consultation

Consultation dates: according to the department's website, or in advance, by e-mail: 'consultant'@epito.bme.hu

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 set out in point 2.2 is based on a mid-semester test, the preparation and submission of the editorial sheets on seminar classes, a two-part home assignment and the oral exam.

3.2 Assessment methods

| Evaluation form | Abbrev. | Assessed learning outcomes |
|-------------------------------------|----------------|--------------------------------------|
| Mid-semester test | ZH1 | A.1-A.11; B.1-B.2, B.5-B.7; C.3; D.4 |
| 1st home assignment | HF1 | A.1-A.13; B.1-B.4; C.1-C.4; D.1-D.2 |
| 2nd home assignment | HF2 | A.1-A.13; B.1-B.4; C.1-C.4; D.1-D.2 |
| Editorial sheets on seminar classes | SZ | A.1-A.13; B.1-B.4; C.1-C.4; D.1-D.3 |
| Oral exam | V | A.1-A.14; B.4-B.7; C.2-C.4; D.4 |

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 |
|--------------------------------------|--------------|
| ZH1 | 20% |
| HF1 | 7,5% |
| HF2 | 7,5% |
| Sz | 15% |
| Total achievable during the semester | 50% |
| V | 50% |
| Sum | 100% |

3.4 Requirements and validity of signature

The requirement to obtain a signature is: minimum attendance criteria (Code of Studies Section 105. If absence from the total number of practical and laboratory practice lessons exceeds thirty percent, the credits for the subject cannot be obtained.), valid mid-semester test, homework assignments and editorial tasks that - each separately - meet the minimum requirements during the study period. The two-part homework can be submitted only after the instructor has signed it by the deadline indicated in the midterm schedule. Without a midterm signature, the assignment may be refused.

3.5 Grading system

| Grade | Points (P) |
|------------------|-------------------|
| excellent (5) | 91% ≤ P |
| good (4) | 78% ≤ P < 91% |
| satisfactory (3) | 65% ≤ P < 78% |
| passed (2) | 49% ≤ P < 65% |
| failed (1) | P < 49% |

3.6 Retake and repeat

1. 2nd retake of mid-semester test (ZH 2): we provide a possibility in the replacement period. Additional fee is required.
2. Late submission of homework assignment (HF1, HF2) and editorial tasks (SZ), is possible by 12:00 on the last day of supplementary week. Additional fee is required in case of late submission.

3.7 Estimated workload

| Activity | Hours/semester |
|-----------------------------------|-----------------------|
| Contact hours | 14×3=42 |
| Completion of the editorial tasks | 5 |
| Preparation for mid-semester test | 8 |
| Homework assignment | 10 |
| Preparation for exam | 25 |
| Sum | 90 |

3.8 Effective date

1 September 2022

This Subject Datasheet is valid for:

2023/2024 semester I