

I. Subject Specification**1. Basic Data***1.1 Title***BUILDING CONSTRUCTIONS I.***1.2 Code***BMEEOEMBSFC002-00***1.3 Type*

Module with associated contact hours

1.4 Contact hours

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

1.5 Evaluation

Midterm grade

1.6 Credits

5

1.7 Coordinator

name	Annamária Dr. Dudás
academic rank	Associate professor
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1.8 Department

Department of Construction Materials and Technologies

1.9 Website

<https://epito.bme.hu/>
<https://edu.epito.bme.hu/course/view.php?id=5232>

1.10 Language of instruction

hungarian and english

1.11 Curriculum requirements

Compulsory in the Civil Engineering (BSc) programme

1.12 Prerequisites

BMEEOEMBSFC001-00 Civil Engineering Representation and Drawing

1.13 Effective date

1 February 2026

2. Objectives and learning outcomes

2.1 Objectives

During the semester, students acquire knowledge in the following areas: effects on buildings, load-bearing wall and frame structures, traditional slabs, foundation methods, insulation of building parts in contact with the ground, flat roofs, traditional roof trusses and coverings, facade formations.

Basic technical drawing skills focus on drawing elements, proportion and scale, reduction and enlargement, floor plans and sections.

The course provides a basic overview of the capabilities and possibilities of CAD systems and the applications they serve. Through practical exercises, students will learn the commands that can be used in a plane to perform basic design tasks: layer use, block creation, labeling, dimensioning, and print settings. The aim of the course is to give students an overview of CAD systems.

During contact hours and through individual work at home, students will deepen their expertise and develop their skills by processing the knowledge acquired in the above topics.

2.2 Learning outcomes

Upon successful completion of this subject, the student:

A. Knowledge

1. Has an overview of the effects on the building, the performance of the building structures that make up the building and the expected requirements,
2. Correctly applies the drawing elements and different scales in technical drawings. Draws floor plans and simple sections based on them.
3. Knows the main editing functions of CAD environments; commands for drawing geometric elements, modification and editing commands, the principle of layer management, and the principle of creating and managing blocks and dynamic objects.
4. Knows the types of walls, the rules for building walls, and the main materials used, as well as the different brick bonds.
5. Understands the process of building skeleton-frame structures and knows their main structural elements.
6. Has an overview of the types of slabs, understands the static functioning of slabs, their layer structure, and the principles of their joint design, and is familiar with the possible ways of designing "thermal bridge-free" structures (e.g. at ring beams, balconies),
7. Understands the functioning of roof trusses in context, is familiar with the parts of pitched roofs, their drainage, and traditional roof coverings,
8. Can distinguish between single-layer and double-layer flat roofs, is familiar with the most commonly used orders of layers,
9. Has a basic knowledge of flat foundations, deep foundations and waterproofing,
10. Knows how to manage attached files in CAD systems and how to configure printing settings.

B. Skills

1. Uses the sign system of graphic communication professionally, prepares the necessary technical drawings and design details to the required scale using the sign system correctly,
2. Routinely reads building design drawings,
3. Effectively applies the methods of knowledge acquisition (notes, sheets prepared during practical lessons, product catalogs, the Internet)
4. Identifies incorrect solutions in plans (corresponding to the subject matter) and is able to describe the correct solutions
5. Describes any subject matter concisely, using technical terms correctly, both verbally and in writing
6. Is able to apply theoretical knowledge critically and thoughtfully when completing a given drawing task
7. Is able to develop and implement the optimal editing process for a given task, create and adjust order of layers, create and manage blocks, and complete labeling and coding tasks
8. Able to attach and manage data from different sources
9. Prepares print settings, views, and sections for flat forms and drawings.
10. Applies knowledge of energy efficiency and environmental awareness when evaluating buildings and

structures.

C. Attitudes

1. Cooperates with the instructor and fellow students in expanding their knowledge.
2. Continuously expands their drawing and communication skills, knowledge and professional vocabulary.
3. Strives to produce accurate drawings and error-free drawings.
4. Strives to understand the principles of energy efficiency and environmental awareness and to expand their knowledge in this area.
5. Strives to carry out the instructions received in class.

D. Autonomy and Responsibility

1. Independently completes the drawings assigned as classwork and the drawings assigned as homework/homework,
2. Accepts well-founded critical comments from teachers and students about their work and incorporates them into their further work,
3. In certain situations, e.g., during practice lessons, cooperates with fellow students in solving tasks.
4. Actively participates in professional discussions.
5. Expresses opinions with justification.

2.3 Methods

Lectures, drawing exercises, laboratory exercises, written and oral communication, use of IT tools and techniques, optional individual and group assignments, work organization techniques.

Computer laboratory exercises. Performance assessment through computer-based assignments.

2.4 Course outline

Week	Topics of lectures and/or exercise classes
1.	Effects on buildings. The relationship between buildings and building structures. Basic technical drawing skills, drawing elements, proportion and scale, reduction and enlargement, representation of floor plan. CAD versions, CAD-based systems, BIM. AutoCAD environment, getting to know the program, basic settings.
2.	Construction of sections and facades. Learning editing commands (rounding, splitting, distribution)
3.	Load-bearing wall structures. Brick bonds. Learning layer management. Creating new layers; Layer management tools; Layer filters; Cleaning unused layers. Completing independent editing exercises using layers.
4.	Slabs and ring beams. Balconies. Designing balconies without thermal bridges. Learning labeling functions (text).
5.	Slab joints, details, slab design. Learning annotation functions (dimensions, leaders, tables)
6.	Types of skeleton buildings, modern structural systems and materials. Learning how to attach and detach referenced drawings (xrefs).
7.	Stairs, structural variations. Creating and managing blocks.
8.	Foundations, main foundation methods. Printing from Layout, paper settings, viewport management.

9.	Flat roof layer order and drainage, insulation materials against precipitation.
10.	Main types of pitched roofs, structural characteristics.
11.	Traditional roofing materials, structural solutions for built-in-attics.
12.	Protection of interior spaces and structures against water: rainwater and drainage, structures in contact with the ground, solutions for protection against subsoil water and soil moisture. Secondary building structures: floor coverings, partition walls, doors and windows.
13.	Facade design, "layers" on the facade, assembled facade cladding
14.	Summary: Relationships between building structural elements, construction technology procedures and rules.

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:

Barsi – Koczka – Lovas – Paláncz: Informatics for Civil Engineers (using AutoCAD and Mathcad), Műegyetem Kiadó, 2009.

b) Downloadable materials:

1. Projected materials from lectures (ppt)

Manufacturers and design aids mentioned in lecture

2.6 Other information

2.7 Consultation

Consultation times:

as specified on the department's website, or by prior arrangement with the practical instructors or subject coordinators (dudas.annamaria@emk.bme.hu) via email.

This Subject Datasheet is valid for:

II. Subject requirements**Assessment and evaluation of the learning outcomes***3.1 General rules*

The assessment of the learning outcomes set out in section 2.2 is based on a home test via the Moodle system, four tests to be completed on computers in the laboratory, a summary final exam, the preparation and submission of worksheets during practical classes, 3 home assignments, and active participation in practical classes.

3.2 Assessment methods

Evaluation form	Abbreviation	Assessed learning outcomes
1 written Mid Semester test (summative assessment)	MT	A.1-2., A.3-9.; B.2, B.4-6; B.10; C.3; D.5
5 Control tests (assessments)	CT1-CT4, Structural CT5	A.1-10; B.1-2; B.4-10; C.3; D.5
3 homework assignments (continuous performance assessment) Practical classes - construction sheets (continuous performance assessment)	HA1 & HA2-HA3 + GP	A.1-10; B.1-3; B.6-10; C.1-3; D.1-5

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	25
CT1-CT4, Structural CT5	35
HA1 & HA2-HA3 + GP	$(2*5)+2*10+10$
Sum	100 %

3.4 Requirements and validity of signature

No signature can be obtained from the subject.

3.5 Grading system

Grade	Points (P)
excellent (5)	$90 \leq P$
good (4)	$80 \leq P < 90$
satisfactory (3)	$65 \leq P < 80$
passed (2)	$50 \leq P < 65$
failed (1)	$P < 50$

The MT, CT1 - CT5, HA1, HA2, HA3, and GP are graded on a scale of 1-5. The minimum requirement for obtaining a grade at the end of the semester is a minimum passing grade for the MT, CT1 - CT5, HA1, HA2, HA3, and GP sheets. For the purpose of continuous performance assessment, the editing sheets (GP) are checked after the exercises, and the final result is calculated from their average. Consultation (at a time designated by the instructor) of the home assignments (HA1-HA3) is recommended. Completion of the assignments does not automatically result in a satisfactory grade. The final grade is calculated according to the weighting of the grades received for each assessment in accordance with 3.3, observing the general rules of rounding. The results of both CT1-4 in the subject can be improved; the result of the last written CT is taken into account. The result of Structural CT can be improved; the result of the better CT is taken into account. The grades for MT and CTs for those who meet the attendance requirements are determined according to the above mentioned criteria.

3.6 Retake and repeat

The results of a Control Test in this subject can be improved; the results of the last written CT will be taken into account. The detailed schedule for the current semester includes information on repetition of Home Assignments.

3.7 Estimated workload

Activity	Hours/semester
attendance at lectures	14×2=28
mid-term preparation for practice sessions	7×1=7
attendance at practice sessions	7×2=14
attendance at laboratory practice sessions	14×2=28
preparation for performance assessments	20
completion of home assignments	35
independent study of designated written material	18
Sum	

3.8 Effective date

1 February 2026

This Subject Datasheet is valid for:
