Expertise in building design - BMEEOEMDT86

I. Subject Specification

1. Basic Data

1.1 Title

Expertise in building design

1.2 Code

BMEEOEMDT86

1.3 Type

Module with associated contact hours

1.4 Contact hours

Type	Hours/week / (days)
Lecture	2

1.5 Evaluation

Exam

1.6 Credits

3

1.7 Coordinator

name	Dr. Nagy Balázs
academic rank	Assistant professor
email	nagy.balazs@emk.bme.hu

1.8 Department

Department of Construction Materials and Technologies

1.9 Website

https://epito.bme.hu/BMEEOEMDT86
https://fiek2.mywire.org/course/view.php?id=2517

1.10 Language of instruction

english

1.11 Curriculum requirements

Ph.D.

1.12 Prerequisites

1.13 Effective date

1 September 2022

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2. Objectives and learning outcomes

2.1 Objectives

Aspects of a new building design technology (BIM) in building design, with a special focus on the potential application of numerical simulations (e.g. fire safety, building energy performance, sustainability, scheduling) and current issues. Analysis of the potential of information technology for the management of building design and implementation works and support for the cooperation of those involved in implementing facilities in virtual space.

2.2 Learning outcomes

Upon successful completion of this subject, the student:

A. Knowledge

1. has an overview of the application areas of BIM including scientific literature,
2. has an overview of the basic issues of BIM-based work, understands the principles of the profession and the importance of its main defining components,
3. knows the criteria for BIM tasks,
4. understands the relationship and interrelationship between 3D models and BIM applications,
5. has an overview of BIM applications represented by market stakeholders,
6. have an overview of the technical aspects of BIM tasks related to civil engineering,
7. know and understand the possibilities and the tasks of BIM-based design technology to be applied in building design.

B. Skills

1. communicates professionally on given topics, using BIM vocabulary correctly,
2. uses knowledge acquisition methods (notes, practical lesson sheets, catalogues, scientific literature, databases, internet resources) effectively in research tasks,
3. reliably evaluates the applications associated with BIM design technology used in building design,
4. able to apply theoretical knowledge critically and thoughtfully in the preparation of a given design task.

C. Attitudes

1. collaborate with the lecturer and fellow students in the development of their knowledge,
2. expand their knowledge through continuous learning and are open to new ways of acquiring information,
3. strive to use professional terminology.

D. Autonomy and Responsibility

1. works independently on a chosen study and research topic,
2. open to well-founded critical comments.

2.3 Methods

Lectures, IT tools and techniques, independent research tasks, work organisation techniques.

2.4 Course outline

Lectures are given in blocks (4x45 minutes):

Week	**Topics of lectures and/or exercise classes**
1.	General overview of BIM and BIM-based building design projects. BIM in building construction and in building operation
2.	BIM-based building design, architectural modelling principles, building energy-focused design
3.	Building design support by collision analysis, quantification, scheduling and simulations.
4.	Presentation of the student research tasks

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

Course materials are uploaded to the website (edu.epito.bme.hu).

2.6 Other information

Attendance is mandatory for 70% of the lectures.

2.7 Consultation

As stated on the department's website or agreed in advance by e-mail (nagy.balazs@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 in section 2.2 is based on a final examination (E), one research task (HF), and active participation (A; partial assessment).

3.2 Assessment methods

Evaluation form	Abbreviation	Assessed learning outcomes
Active participation	A	C.1-C.3; D.2
Research task	HF	A.1-A.7; B.1-B.4; C.1-C.3; D.1
Final examination	E	A.1-A.7; B.3-B.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
A	10%
HF	40%
E	50%
Sum	**100%**

3.4 Requirements and validity of signature

The signature obtained in the subject is valid for two semesters.

3.5 Grading system

Grade	Points (P)
excellent (5)	$90\% \leq P$
good (4)	$75\% \leq P < 90\%$
satisfactory (3)	$60\% \leq P < 75\%$
passed (2)	$50\% \leq P < 60\%$
failed (1)	$50\% \leq P$

3.6 Retake and repeat

- By its nature, active participation cannot be replaced, corrected or substituted.
- The research task may be submitted late, after the normal submission deadline until the last day of the repeat period.
- The final exam can be retaken or corrected free of charge until the end of the exam period.

3.7 Estimated workload

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Activity	Hours/semester
participation in the lectures	4×4=16
preparation for the lectures	4×2=8
preparation of the research task	42
preparation for the exam	24
Sum	**90**

3.8 Effective date

1 September 2022

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Inactive courses