Technical value analysis - BMEEOEMDT89

I. Subject Specification

1. Basic Data

1.1 Title

Technical value analysis

1.2 Code

BMEEOEMDT89

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. Dudás Annamária
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/BMEEOEMDT89
https://fiek2.mywire.org/course/view.php?id=2514

1.10 Language of instruction

hungarian and english

1.11 Curriculum requirements

Ph.D.

1.12 Prerequisites

1.13 Effective date

1 September 2022

Technical value analysis - BMEEOEMDT89

2. Objectives and learning outcomes

2.1 Objectives

This course will provide the doctoral student with in-depth knowledge in the following areas, which will enable the processing and demonstration of scientific results in the fields of building constructions value analysis, environmental renovation and property valuation. The course covers the following topics: the obsolescence of buildings, the failures affecting the obsolescence of buildings and building constructions. Condition assessment of building constructions, technologies for the preservation of building value and value impoving by reconstruction. The analysis of value and the methods of real estate valuation. Value enhancement through renovation, building rehabilitation and certification of structures. Methods of value analysis and property valuation. Environmentally friendly aspects in the building industry, healthy buildings and living/working circumstances. Building biology and indoor comfort.

2.2 Learning outcomes

Upon successful completion of this subject, the student:

A. Knowledge

1. Have an overview of the failures of building constructions.
2. Can properly assess the condition of building constructions according to various inspection criteria.
3. Know the consequences of constructional failures and damages.
4. Has an overview of the obsolescence of building structures, value prevention technologies, renovation options, taking into account environmental considerations.
5. Understands the advantages and disadvantages of assessment methods and the accuracy of estimation of the assessment methods used.
6. Knowledge of the characteristics of healthy buildings, building biology and comfort conditions.
7. Understands standards, regulations and the need to take them into account from a certification point of view.
8. Interprets in a creative way the expected trends in the development and improvement of the technical field.
9. Possesses the knowledge of research methodology necessary for independent research in the field of engineering.

B. Skills

1. Professionally summarise the topics of building construction value assessment.
2. Effectively use knowledge acquisition methods (textbooks, catalogues, scientific articles, online resources) in his/her work.
3. Reliably evaluate the results of valuation methods.
4. Can assess the condition of building structures and provide renovation solutions.
5. Ability to apply theoretical knowledge in a critical and considered context when assessing a given building/building structure.
6. Ability to carry out research in his/her field of specialisation, to solve specific problems encountered; to develop and apply new interdisciplinary methods.
7. Ability to develop and demonstrate new research techniques and approaches in a given discipline.

C. Attitudes

1. Collaborate with the teacher and fellow students in the development of knowledge.
2. Expands his/her knowledge through continuous learning and is open to new ways of acquiring information.
3. Strives to use professional terminology in a professional manner.
4. Is committed to and critical of professional, technological development and innovation in engineering.
5. Committed to quality standards.

D. Autonomy and Responsibility

1. Independently complete the study/topic of your choice.
2. Is open to well-founded critical comments.
3. Initiates new research in a creative way.
4. Has a high degree of autonomy in developing, representing and advocating professional views on broad and specific professional issues in the field of modern engineering.

2.3 Methods

Lectures, case studies, field trips, written and oral communication, optional independent and group work, work organisation techniques.

2.4 Course outline

Week	**Topics of lectures and/or exercise classes**
1.	Introduction. Objectives and tasks of technical value analysis
2.	The obsolescence of buildings, failures affecting the obsolescence of buildings and building structures.
3.	Condition assessment of building constructions.
4.	Diagnostics of building constructions in contact with soil, methods of renovation. Assessment of the condition of walls, slabs, roofs and windows.
5.	Technologies of value preservation.
6.	Value enhancement through renovation, building rehabilitation and certification of constructions.
7.	Environmentally consciousness in the building industry. Environmental building renovation aspects and methods. Circular economy.
8.	Methods of value analysis and real estate valuation.
9.	Special building construction solutions: modular construction, analysis of earth houses, container houses.
10.	Healthy buildings and living/working space
11.	Building biology and indoor comfort.
12.	Case studies.

13.	Educational field trip
14.	Research, evaluation of articles, methodology.

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

- Emmitt, Stephen, Barry's Introduction to Construction of Buildings John Wiley & Sons Inc, 2018, ISBN 9781118977163
- Emmitt, Stephen, Barry's Advanced Construction of Buildings John Wiley & Sons Inc, 2018, ISBN 9781118977101
- Ernst Neufert Győri Róbert (Szerk.) Építés- és tervezéstan, Dialóg Campus, 2014 ISBN 9786155376207
- Tom Woolley, Sam Kimmins, Rob Harrison, Paul Harrison: Green building handbook ISBN-13: 978-0419226901, ISBN-10: 0419226907
- Relevant scientific articles from the following journals: Building and Environment, Energy and Buildings, Journal of Cleaner Production, Construction and Building Materials, Journal of Cultural Heritage, Engineering Structures, Detail

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, horn.valeria@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 2.2 is based on an examination and active participation in lectures. The lectures are at least. 70 % of the lectures must be attended.

3.2 Assessment methods

Evaluation form	Abbrev.	Assessed learning outcomes
active participation (continuous evaluation)	A	A.1-A.9; B.2, B.7; C.1-C.5; D.2-D.4
exam (summarizing evaluation)	E	A.1-A.9; B.1-B.7; C.3-C.5; D.1-D.2

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 %
During semester period - Sum	10 %
Exam	90 %
Sum	100 %

3.4 Requirements and validity of signature

Active participation in at least 70% of the lectures is required to obtain a signature.
The previously obtained semester results unlimitedly can be taken into account in the examination.

3.5 Grading system

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%

Exam and active participation are rated with a grade between 1 and 5.
For those who fulfil the attendance requirements, the grades are determined as above.

3.6 Retake and repeat

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
Preparation for the lessons	14×0,5=7
Preparation of the home assignments	55
Sum	**90**

3.8 Effective date

1 September 2022

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Inactive courses