

I. Tantárgyleírás

1. Alapadatok

1.1 Tantárgy neve

ECONOMICS OF CIVIL ENGINEERING PROJECTS

1.2 Azonosító (tantárgykód)

BMEEOUVMSFIN11-00

1.3 Tantárgy jellege

Kontaktórás tanegység

1.4 Óraszámok

Típus	Óraszám / (nap)
Előadás (elmélet)	2

1.5 Tanulmányi teljesítményértékelés (minőségi értékelés) típusa

Félévközi érdemjegy

1.6 Kreditszám

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1.7 Tárgyfelelős

név	Dr. Orosz Csaba
beosztás	Egyetemi docens
email	orosz.csaba@emk.bme.hu

1.8 Tantárgyat gondozó oktatási szervezeti egység

Út és Vasútépítési Tanszék

1.9 A tantárgy weblapja

epito.bme.hu

<https://edu.epito.bme.hu/course/view.php?id=4996>

1.10 Az oktatás nyelve

magyar

1.11 Tantárgy típusa

Kötelezően választható az Infrastruktúra-építőmérnök (MSc) szak Út- és vasútmérnöki specializációján

1.12 Előkövetelmények

1.13 Tantárgyleírás érvényessége

2025. szeptember 1.

2. Céltűzések és tanulási eredmények

2.1 Céltűzések

Aim of the course: To acquire basic skills in the complex analysis of civil engineering projects. Technical, environmental and economic assessment. Ability to balance and calculate social costs, social benefits and private costs and benefits. Proficiency in risk assessment.

2.2 Tanulási eredmények

A tantárgy sikeres teljesítése után a hallgató

A. Tudás

1. Knows the basic economic concepts of civil engineering facilities. 2. Gets acquainted with the scale, circumstances and risks of some major Hungarian and international civil engineering investments. [Traffic, environment] Knows the basic methods of follow-up investigations. 3. Knows the preliminary goals and sees the sometimes disputed end results. 4. Knows the basic international approaches; the market and welfare approach. It reviews some basic assessment techniques. If necessary, you can quickly find the basic literature sources in Hungarian and foreign languages.

B. Képesség

1. Able to quickly review and select the literature. [Quick detection of current cases using the Internet. A similar task during the inquiry.] 2. Basic proficiency in ex-ante project evaluation and ex-post inventory. 3. It becomes suitable for making expert assessments, assessing the degree of complexity of projects, and for objective, balanced, multi-criteria evaluation. 4. Familiarize yourself with the basic rules of cooperation with representatives of other professions. [Architects, lawyers, economists, environmentalists, conservationists.]

C. Attitűd

1. Collaborates with the instructor and fellow students to expand knowledge. Further improving skills in the direction of cooperation, teamwork, open evaluation. 2. Cooperates with the instructor in the preparation of partial performance evaluations. 3. Expands his knowledge and professional vocabulary with continuous acquisition of knowledge. He puts it right. Open to the use of information technology tools. 4. Strives for an accurate, error-free solution. 5. Prepares documentation of the quality and appearance expected at the engineering level, organized during his written performance evaluations. 6. The student's knowledge develops in the following areas: teamwork, discussion culture, tolerance, insight; documentation for professional purposes and social participation. [public participation]

D. Önállóság és felelősség

1. Independently processes the knowledge material listened to and discussed in the lecture classes in order to successfully complete the summary performance evaluations. 2. Performs, independently and to the best of his / her knowledge, the tasks assigned in the independent partial performance assessments. [Teamwork - Lecture and Opponent Opinions.] 3. Receives well-founded and exaggerated critical remarks. 4. Use a systematic, balanced approach in your thinking.

2.3 Oktatási módszertan

Lectures with presentations, interactively. Historical case studies and current affairs. [70% - 30%] Project presentation in groups of 2-4 people. Communication, Internet resource search data processing in writing and orally during classes and performance evaluation.

2.4 Részletes tárgyprogram

1. Airports as COMPLEX TRANSPORT FACILITIES. I. Major airports in Europe. Interaction of market and welfare planning mechanisms. 2. Development, competition and competitiveness of airports and their region. Transport-aviation competition in Central and Eastern Europe. 3. Major transport investments in international practice. CBA (Cost-Benefit Analysis) - Basic methodology. CBA - MCA - Value Analysis - Life Cycle Analysis. 4. Case studies. Practice of applying cost-benefit analysis. 5. Domestic and international transport investments. Specific methods, financing practice. 6. CBA: Profit - to - cost ratio, net present value, internal rate of return. Transport developments, road developments in Hungary, 1994-2016-. 7. CBA: Simplified examples for cost-benefit analysis. Traffic forecast. Possibilities of error. Financial, environmental and ethical risks. Student lectures 8. Value analysis. Basics, examples, effects, side effects. Student lectures 9. CBA: Economic Concepts of Cost-Benefit Analysis. Consumer surplus. The cost of opportunity. Transfer payments and double counting. External effects. 10. Environmental externalities. Real proportions, scales. Student lectures 11. CBA:

Economic Concept of Equivalent Compensation. Pareto-optimum. The value of time saved. Accident costs. Student lectures. 12. CBA: Risk analysis, sensitivity testing. Student lectures. 13. Student lectures. Summary. Knowledge and ability survey. 14. Concise summary. Key lessons from performance appraisal. Interactive closing presentation.

A félév közbeni munkaszüneti napok miatt a program csak tájékoztató jellegű, a pontos időpontokat a tárgy honlapján elérhető "Részletes féléves ütemterv" tartalmazza.

2.5 Tanulástámogató anyagok

Downloadable materials: - lecture slides - project guide including calculation samples Literature: Adler, H (1992) : Cost Benefit Analysis. Examples. pp. 1-275.; Decision Making on Mega- Projects. Edward Elgar Publishing Ltd. (2008) pp. 1-342

2.6 Egyéb tudnivalók

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2.7 Konzultációs lehetőségek

The instructors are available for consultation during their office hours, as advertised on the department website.

Jelen TAD az alábbi félévre érvényes:

II. Tárgykövetelmények**3. A tanulmányi teljesítmény ellenőrzése és értékelése***3.1 Általános szabályok*

The evaluation of the formulated learning outcomes is based on a mid-year written summary performance evaluation, as well as an independent partial performance evaluation (presentation of a case study in the framework of group work) and the activity demonstrated in the lectures.

3.2 Teljesítményértékelési módszerek

Assessment Name (Type)	Code	Assessed Learning Outcomes
Midterm test	MT	A.1-A.4; B.1
Presentation	PR1	A.1-A.5; B.1-B.3; C.1, C.3, C.6; D.2-D.4
Homework	HW1	A.1-A.5; B.1-B.6; C.1-C.6; D.1-D.4

A szorgalmi időszakban tartott értékelések pontos idejét, a házi feladatok ki- és beadási határidejét a "Részletes féléves ütemterv" tartalmazza, mely elérhető a tárgy honlapján.

3.3 Teljesítményértékelések részaránya a minősítésben

Code	Weight
MT	50%
PR1	20%
HW1	30%
Total	100%

3.4 Az aláírás megszerzésének feltétele, az aláírás érvényessége

Signature can not be obtained for the course.

3.5 Érdemjegy megállapítása

Grade	Score (P)
excellent (5)	$90 \leq P$
good (4)	$75 \leq P < 90\%$
satisfactory (3)	$63 \leq P < 74\%$
pass (2)	$50 \leq P < 63\%$
fail (1)	$P < 50\%$

3.6 Javítás és pótlás

1) The homework may be submitted late at the dates described in the "Detailed Schedule" with paying a special fee. 2) Due to the nature of the presentation, the presentation cannot be replaced, improved, or otherwise replaced. 3) The MT1 may be retaken free of charge for the first time at the date described in the "Detailed schedule". In the case of a retake, the new result overwrites the previous result in all cases.

3.7 A tantárgy elvégzéséhez szükséges tanulmányi munka

Activity	Hours/Semester
Contact hours	$14 \times 2 = 28$
Preparation for the test	22
Case study, preparation of a presentation	28
Homework	12

3.8 A tárgykövetelmények érvényessége

2025. szeptember 1.

Jelen TAD az alábbi félévre érvényes: