SUBJECT DATASHEET

Environmental Efficiency Evaluation

BMEGT42M414

I. SUBJECT DESCRIPTION

1. SUBJECT DATA

Subject name
Environmental Efficiency Evaluation

ID (subject code)	BMEGT42M414

Type of subject
contact unit

Course types and lessons

Type	*Lessons*
Lecture	1
Practice	1
Laboratory	0

Type of assessment
mid-term grade

Number of credits
3

Subject Coordinator

Name	*Position*	*Contact details*
Dr. Csuvár Ádám	senior lecturer	csuvar.adam@gtk.bme.hu

Educational organisational unit for the subject
Department of Environmental Economics and Sustainability

Subject website
https://edu.gtk.bme.hu/

Language of the subject
magyar - HU

Curricular role of the subject, recommended number of terms
Programme: **MSc in Environmental Engineering**
Subject Role: **Compulsory for the specialisation**
Recommended semester: **3**

Direct prerequisites

Strong	None
Weak	None
Parallel	None
Exclusion	None

Validity of the Subject Description
Approved by the Faculty Board of Faculty of Economic and Social Sciences, Decree No: 580439/11/2024 registration number. Valid from: 29.05.2024.

2. OBJECTIVES AND LEARNING OUTCOMES

Objectives

The aim of the course unit is to introduce environmental performance assessment techniques and methods. The course unit introduces macro level performance assessment methods, and the necessity and aims of the application of such methods, and the practical applicability of methods and their findings in organisational practice.

Academic results

Knowledge

1. Knows the theoretical background and the main concepts of environmental performance assessment techniques.
2. Knows the macro level performance assessment methods, and planning methods.
3. Knows the of the application of such methods, and the practical applicability of methods and their findings in organisational practice.

Skills

1. They are competent in applying the generic and specific mathematical, natural science and social science principles, rules, internependencies and procedures in order to resolve problems arising in the domain of environmental protection.
2. They are competent in the design and operation of environmental management systems.
3. They are competent in energy efficiency analyses, surveys, audits, the planning and execution of energy efficiency actions.

Attitude

1. They shall adopt the professional and ethical system of values required for environmental protection.
2. They shall strive to plan and execute their duties professionally, autonomously or in a working group.
3. They shall strive to perform their work with a system-oriented and process-oriented mindset, following a complex approach.

Independence and responsibility

1. During their decision-making, they shall respect workplace health and safety, technical, economic and legal regulations, as well as fundamental engineering ethics.
2. They shall take an initiator attitude in resolving environmental problems and conflicts, they shall uncover and reveal the shortcomings of applied techniques and technologies, the endemic risks in processes, and shall initiate mitigatory efforts in order to contain and reduce these.
3. Feels responsible for taking greater account of environmental and social aspects.

Teaching methodology

Lectures, team work

Materials supporting learning

- Az oktató által kiadott diasorok és egyéb tanulástámogató anyagok / Slides provided by the instructor and other learning materials

II. SUBJECT REQUIREMENTS

TESTING AND ASSESSMENT OF LEARNING PERFORMANCE

General Rules

The formulated learning outcomes are evaluated on the basis of two summative assessments (a mid-term exam and a case game with task
solutions) and a formative assessment (independent task).

Performance assessment methods

Detailed description of performance evaluations during the study period: 1. Summative assessments: a complex, written evaluation of the content of the subject in the context of a mid-term exam and case study. The purpose of the case game is to check the way of using the acquired knowledge and the existence of competences. 2. Independent task: a complex evaluation method of the knowledge, ability, attitude, independence and responsibility elements of the subject, to show how the student acquired the knowledge, whether he has the skills and ability to solve the task independently, whether he was able to use the knowledge apply and evaluate creatively. The content of the independent task is determined by the instructor after discussion with the student. The content framework and submission method/deadline
of the independent assignment is determined by the instructor.

Percentage of performance assessments, conducted during the study period, within the rating

- **1st summative assessment**: 30
- **2nd summative assessment**: 30
- **formative assessment (independent task)**: 40
- **total**: 100

Percentage of exam elements within the rating

Conditions for obtaining a signature, validity of the signature

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Issuing grades

Excellent	90
Very good	85-89
Good	70-84
Satisfactory	55–69
Pass	40–54
Fail	0-39

Retake and late completion

English (optional): például: 1) Pursuant to the current CoS, each summative assessment can be retaken, repeated or completed late. 2) The summative assessments can be retaken, repeated or completed late for the first time during the late completion period free of charge. In the event of a retake, the new result always overwrites the old one. 3) If the student is unable to obtain a grade other than 'Fail' even with the retake, repeat and late completion possibilities according to point 1), they may make a second attempt to successfully complete the course after paying the fee specified in the regulations. 4) Pursuant to the current CoS, in the case of formative assessments, if the assignment was submitted on time, it is possible to repeat or retake it before the end of the late completion period, if the original task has already been accepted by the instructor. 5) Formative assessments can be submitted late, subject to payment of the special procedure fee specified in the regulations. The latest date for late submission is the last day of the late completion period.

Coursework required for the completion of the subject

participation in contact classes	28
preparation for contact classes	12
preparation for summative assessments	10
preparation of the formative assessment	40
total	90

Approval and validity of subject requirements

Consulted with the Faculty Student Representative Committee, approved by the Vice Dean for Education, valid from: 06.05.2024.

III. COURSE CURRICULUM

THEMATIC UNITS AND FURTHER DETAILS

Topics covered during the term

In order to achieve the learning outcomes set out at point 2.2, the subject consists of the following thematic blocks. In the syllabi of the courses announced in each semester, these topics are scheduled according to the calendar and other conditions.

1 Industrial metabolism, material flow analysis. Complete economic material balances. Economy and environment: the need for a new approach!

2 National accounts versus environmental accounts. Environmental accounts and SNA. Areas of applicability of environmental accounts.

3 The System of Integrated Economic and Environmental Accounts (System of Economic and Environmental Accounts, SEEA).

4 Eco-controlling as a means of ensuring continuous development and improving corporate environmental performance. Environmental support of corporate controlling and the strategic indicator system (Balance ScoreCard, BSC).

5 Methods of evaluating environmental performance, applicability of individual methods.

6 The preparatory phase of the performance evaluation: eco-mapping.

7 Performance evaluation in the ISO 14001 standard system. Objectives and scope of the audit program. Activities of the audit.

8 Managing the implementation of the audit program. Audit program responsibilities, resources and procedures. Implementation of the audit program. Monitoring and review of the audit program.

9 The activities of the audit: initiating the audit, conducting the inspection of documents, preparations for the on-site audit activities, conducting the on-site audit activities, preparing the audit report, completing the audit, performing the tasks arising from the audit.

10 Preparedness and evaluation of auditors: personal qualities, knowledge and skills, education, work experience, auditor qualification and audit practice, maintaining and developing the level of preparedness.

11 Environmental performance assessment process according to ISO 14031. Concept and types of environmental indicators.

12 Aspects of the selection and application of environmental indicators. The role and importance of environmental indicators in performance evaluation.

13 Case study, case game with problem solving.

14 Types and content of environmental reports. The environmental report as a management tool.

Additional lecturers

Dr. Kósi Kálmán György címzetes egyetemi tanár / honorary professor kosi.kalman@gtk.bme.hu

Approval and validity of subject requirements