SUBJECT DATASHEET

Environmental Efficiency Evaluation

BMEGT42MN21

I. SUBJECT DESCRIPTION

1. SUBJECT DATA

Subject name
Environmental Efficiency Evaluation

ID (subject code)	BMEGT42MN21

Type of subject
contact unit

Course types and lessons

Type	*Lessons*
Lecture	2
Practice	0
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; angol - ENG

Curricular role of the subject, recommended number of terms
Programme: **Engineering Manager Msc - Environmental management specialisation**
Subject Role: **Compulsory for the specialisation**
Recommended semester: **3**

Programme: **Master of Science Degree Program in Engineering Management**
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 subject is to familiarize the student with the techniques and methods related to environmental performance evaluation. The subject presents the macro-level methods of performance evaluation, and their necessity and goals in corporate application, as well as the applicability of individual methods and results in corporate practices.

Academic results

Knowledge

1. The student knows the concept system related to the field of management, the most important related concepts and theories;
2. knows the role of sustainability in the operation of organizations;
3. knows the tasks of the management related to the field environmental protection (the corporation and their environment – the role and responsibility of the corporation regarding the implementation of environmental goals);
4. knows the problem-solving methods related to environmental management, the solutions related to externalities, and the micro level analysis and decision supporting methods (corporate environmental management tools);
5. knows the basic economic, business related and legal regulations and tools related to the management of organizations.

Skills

1. The student is able to employ the obtained general and specific management knowledge, tools and methods in order to solve problems in the field of environmental protection;
2. is able to think systematically, and to use a PDCA- or process management based approach.

Attitude

1. The student accepts the professional and ethical values related to the field of environmental protection and is open to learning about the developments and innovations in the field;
2. aims to plan and implement their independent- or group tasks on a high professional level;
3. aims to perform their work with a complex, process-oriented and systematic approach;
4. based on the above mentioned points, the student is open for cooperation.

Independence and responsibility

1. The student takes occupational health and safety, technological, economic and legal regulations and basic principles of engineering ethic into account during their decisions, and is capable of independent problem-solving;
2. takes initiative in the solving of environmental protection related problems, reveals the shortcomings of the applied technologies and the threats related to the applied processes. Furthermore, the student instigates the preformation of measures aimed to mitigate these.

Teaching methodology

Lectures, where case studies are presented after the theoretic lecture.

Materials supporting learning

- Kósi Kálmán – Valkó László (szerk.): Környezetmenedzsment. Typotex Kiadó, Budapest, 2006.
- Bartus Gábor – Szalai Ákos: Környezet, jog, gazdaságtan. Környezetpolitikai eszközök, környezet-gazdaságtani modellek és joggazdaságtani magyarázatok. Pázmány Press, Budapest, 2014.
- Az előadások diasora. – Slideshows of the lectures.

II. SUBJECT REQUIREMENTS

TESTING AND ASSESSMENT OF LEARNING PERFORMANCE

General Rules

The evaluation of the learning outcomes stated above (2.2) occurs through two summative assessments (two mid-term exams).

Performance assessment methods

The detailed description of the evaluation of learning outcomes during the study period: Summative assessment: the complex written evaluation method of the subject, and the competence elements of knowledge, ability, attitude and self-reliance and accountability through to midterm exams. The mid-term exam focuses on the attained basic knowledge (concepts, definitions, characteristics of different
methodologies) as well as the understanding and application of related concepts.

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

- **1. summative assessment**: 50
- **2. summative assessment**: 50
- **total**: 100

Percentage of exam elements within the rating

Conditions for obtaining a signature, validity of the signature

-

Issuing grades

Excellent	90
Very good	80–89
Good	70–79
Satisfactory	60–69
Pass	40–59
Fail	0-39

Retake and late completion

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.

Coursework required for the completion of the subject

participation in contact lessons	28
preparation for assessments	42
autonomous learning	20
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 The goal and methods of teaching the subject. Basics: material flow analysis, process management, analysis of flows according to the logic of the PDCA cycle.

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

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

4 Areas of applicability of environmental accounts. The System of Integrated Economic and Environmental Accounts (System of Economic and Environmental Accounts, SEEA).

5 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).

6 Methods of evaluating environmental performance, applicability of individual methods. 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 The appearance of environmental performance in the environmental and sustainability (GRI STANDARDS) reports of business organizations.

Additional lecturers

Dr. Kósi Kálmán György	címzetes egyetemi tanár / honorary professor	kosi.kalman@gtk.bme.hu
Dr. Csuvár Ádám	egyetemi adjunktus / senior lecturer	csuvar.adam@gtk.bme.hu

Approval and validity of subject requirements