SUBJECT DATASHEET

Circular Economy

BMEGT42M416

I. SUBJECT DESCRIPTION

1. SUBJECT DATA

Subject name
Circular Economy

ID (subject code)	BMEGT42M416

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. Bartus Gábor	senior lecturer	bartus.gabor@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: **4**

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 is to acquaint students with the characteristics and environmental effects of socio-economic material use (material throughput), the idea and measuers of the circular economy, as well as the environmental economics of waste management and related environmental policies, especially in the European Union and in Hungary. During the course, we will also provide an overview of the possibilities of corporate management practices for circular economy.

Academic results

Knowledge

1. Rendelkezik a makroökonómia termelési tényezőkre vonatkozó The student has theoretical knowledge of the parts of macroeconomics concerning the factors of production and knowledge of their practical applicability.
2. The student knows the different interpretive concepts and theories of circular economy.
3. The student knows the macro-level horizontal instruments of waste management policy.
4. The student knows the relevant indicators, typical methods of evaluation.
5. The student knows the main features of the practice of the corporate circular economy management.

Skills

1. The student is able to use the learned theories and methods, he/she explores, systematizes and analyzes facts and basic connections, formulates independent conclusions and critical remarks, makes decision-making proposals, and makes decisions in routine and partly unknown - domestic and international - environments.
2. The student interprets the possible consequences of the use of materials in his engineering or managerial profession and activity, and is able to create relevant circular economic alternatives for the management and solution of any problems that may arise.
3. The student is able to calculate and analyze the complex consequences of economic and technological processes.
4. The student can apply relevant problem solving techniques and methods, problem solving methods, taken into account their application conditions and limitations.
5. The student is able to collaborate with others with different disciplines.

Attitude

1. In order to perform quality work, the student is problem-sensitive and proactive.
2. Receptive to new information, new professional knowledge and methodologies, open to new, independent and collaborative tasks and responsibilities. The student strives to improve his knowledge and working relationships.
3. The student is open to challenges in the broader economic and social environment of the given job, work organization, enterprise, strives to follow and understand the changes.
4. The student has inclusive views on sectoral, regional, national and European values (including social, societal and ecological, sustainability aspects).

Independence and responsibility

1. The student is responsible for his/her analyzes, conclusions and decisions.
2. The student is responsible for complying with professional, legal, ethical standards and rules related to his/her work and conduct.

Teaching methodology

Lectures, written and oral communication, use of IT tools and techniques.

Materials supporting learning

- A kurzus alapvető tananyaga egy több cikkből és tanulmányból álló válogatás, amit az új eredmények megjelenésével folyamatosan frissítünk. Az anyagok elektronikusan minden hallgató számára elérhetők, letölthetők.
- The core curriculum of the course is a selection of several articles and research papers, which are constantly updated as new results appear. The materials are available and downloadable for all students.

II. SUBJECT REQUIREMENTS

TESTING AND ASSESSMENT OF LEARNING PERFORMANCE

General Rules

The learning outcomes stated in point 2.2. are evaluated on the basis of the performance shown in the summative assessments (2 mid-term
exams).

Performance assessment methods

Detailed description of performance evaluations during the study period: 2 mid-term exams. The mid-term exams are multiple-choice tests: they measure the accuracy of the use of concepts, the correct knowledge of the basic theorems and connections, and the ability to apply the basic theorems.

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

- **1st summative assessment**: 50
- **2nd summative assessment**: 50
- **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	92
Very good	85-91
Good	70-84
Satisfactory	55-69
Pass	40-54
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 contact lessons	22
Preparation for summative assessments	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 Introduction: problems, questions and methods of waste management

2 The state of natural resources and the environment - Anthropogenic causes of the overuse of natural resources - Characteristics of the social material flow - The normative idea of the circular economy

3 Circular economy: solutions to solve the problems of social material flow

4 Basic concepts of waste management - Integrated waste management (IWM)

5 IHG tools: orderly disposal, waste incineration, utilization, prevention

6 Basic economic issues of waste management, the three basic optimization tasks

7 Possible forms of environmental policy interventions in waste management (theory of regulation)

8 Regulatory practice (1): policies and legislation of the European Union in the field of circular economy and waste management

9 The practice of regulation (2): Hungary

10 Some interesting aspects of the practice of regulation on the example of domestic municipal solid waste

11 Corporate good practices of the circular economy

Additional lecturers

Approval and validity of subject requirements