SUBJECT DATASHEET

Zero Carbon Ecomony

BMEGT42V107

I. SUBJECT DESCRIPTION

1. SUBJECT DATA

Subject name
Zero Carbon Ecomony

ID (subject code) BMEGT42V107

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
2

Subject Coordinator

Name	*Position*	*Contact details*
Dr. Zilahy Gyula	professor	zilahy.gyula@gtk.bme.hu

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

Subject website
edu.gtk.bme.hu/

Language of the subject
magyar - HU

Curricular role of the subject, recommended number of terms
Programme: **Elective subjects**
Subject Role: **Elective**
Recommended semester: **0**

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: 580393/12/2023 registration number. Valid from: 31.05.2023.

2. OBJECTIVES AND LEARNING OUTCOMES

Objectives

The aim of the course is to show future engineers and economists how different sectors of the economy will be transformed to meet decarbonisation targets. The course will place the transition to a climate-neutral economy in the cost-benefit analysis framework typically used to analyse policy programmes. It then takes the main business, technology and regulatory issues of decarbonisation from the global legal context of climate neutrality to sectoral analysis and individual project level.

Academic results

Knowledge

1. The economics of climate change
2. Microeconomics basics
3. Global climate and energy policy
4. Climate and energy policies of the European Union and Hungary, the European Green Deal
5. Basic knowledge of energy market regulation
6. Regulatory challenges of energy transition
7. Energy efficiency basics
8. Green business models
9. Green finance

Skills

1. Understand how incentive schemes work
2. Understand aspects of the impacts of the climate transition on economic sectors
3. Ability to identify the complex consequences of economic and technological processes, taking into account their conditions of application and their constraints.
4. Understands the future engineering and management challenges of the transition to a climate-neutral economy.
5. Ability to collaborate with other disciplines.

Attitude

1. Demonstrates a problem-sensitive and proactive attitude in order to deliver quality work.
2. Receptive to new information, new professional knowledge and methodologies, open to new tasks and responsibilities that require self-reliance and cooperation. He/she strives to contribute to the development of his/her knowledge and working relationships, develop his/her professional and interpersonal skills.
3. Is open to changes in the wider economic and social environment of his/her work organisation or enterprise, and seeks to follow and understand changes.
4. Receptive to the opinions of others, sectoral, regional, national and European values (including social, economic and cultural values), social and ecological, sustainability aspects).

Independence and responsibility

1. Takes responsibility for his/her analyses, conclusions and decisions.
2. Assume responsibility for compliance with professional, legal and ethical standards and rules relating to work and conduct.

Teaching methodology

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

Materials supporting learning

- Oktatók által írt jegyzet és kapcsolódó prezentációk, megadott irodalom / Lecturer's notes and related presentations, included literature

II. SUBJECT REQUIREMENTS

TESTING AND ASSESSMENT OF LEARNING PERFORMANCE

General Rules

The assessment of the learning outcomes set out in point 2.2 is carried out by means of two summative assessments (mid-term exams)

Performance assessment methods

Summative assessments during the instruction period: 2 mid-term exams. Mid-term exams are multiple-choice tests and essay question

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

- **1st summative assessment**: 50
- **2nd summative assessment**: 50
- **sum**: 100

Percentage of exam elements within the rating

Conditions for obtaining a signature, validity of the signature

-

Issuing grades

Excellent	91
Very good	88-90
Good	75-87
Satisfactory	62-74
Pass	50-61
Fail	0-49

Retake and late completion

1) Both of the two summative assessments can be subject to repeat and late completion. 2) The repeat- or late-completion of summative assessments for the first time during the repeat period free of charge. In the event of a correction, the new result always overwrites the old one. 3) If the student is unable to obtain a grade other than 'Fail' even with the repeat according to point 1), he/she may make a second attempt to successfully complete the course by paying the fee specified in the regulations.

Coursework required for the completion of the subject

lessons	28
preparing for the next contact lesson	12
preparing for summative assessment	20
sum	60

Approval and validity of subject requirements

Consulted with the Faculty Student Representative Committee, approved by the Vice Dean for Education, valid from: 08.05.2023.

III. COURSE CURRICULUM

THEMATIC UNITS AND FURTHER DETAILS

Topics covered during the term

In order to achieve the learning outcomes set out in 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 Climate change - scientific foundations
2 Energy production technologies with low carbon emissions
3 The economics of climate change
4 Global and EU climate and energy policy
5 Hungary's climate and energy policy
6 Regulatory challenges of the energy transition
7 First is energy efficiency
8 Low-carbon energy sector I: Electricity sector
9 Low-carbon energy sector II: Transport
10 Low-carbon energy sector III: The role of green gases in the energy transition
11 Low-carbon energy sector IV: Buildings
12 Green business models
13 Green finance

Additional lecturers

Dr. Kaderják Péter	BME Zéró Karbon Központ (ZKK) vezetője / director of ZKK	kaderjak.peter@bme.hu
Ürgéné dr. Vorsatz Diána	CEU professzor / Professor at CEU	-
Dr. Szolnoki Pálma	BME Zéró Karbon Központ tudományos főmunkatárs	-
Molnár Gábor	MET Asset Management	-
Baji Gál Imréné Szarvas Nóra	MNB, Fenntartható Pénzügyek Főosztály, felügyeleti tanácsadó	-
Dr. Botos Barbara	EM, klímaügyekért és klímadiplomáciáért felelős utazó nagykövet	-
Dr. Csoknyai Tamás	BME, Épületgépészeti és Gépészeti Eljárástechnika Tanszék, tanszékvezető	-
Dr. Csermely Ágnes	MEKH Elemzési és Modellezési Főosztály, főosztályvezető	-
Lengyel Balázs	BME Zéró Karbon Központ, tudományos munkatárs	-
Tóth Lujza	BME Gépészmérnöki Kar (BME GPK)	-

Approval and validity of subject requirements