



# **SUBJECT DATASHEET**

## **Zero Carbon Economy**

### **BMEGT42V107**

# I. SUBJECT DESCRIPTION

## 1. SUBJECT DATA

### Subject name

Zero Carbon Economy

### ID (subject code)

BMEGT42V107

### Type of subject

contact unit

### Course types and lessons

<i>Type</i>	<i>Lessons</i>
Lecture	2
Practice	0
Laboratory	0

### Type of assessment

mid-term  
grade

### Number of credits

2

### Subject Coordinator

<i>Name</i>	<i>Position</i>	<i>Contact details</i>
Dr. Buzási Attila	associate professor	buzasi.attila@gtk.bme.hu

### Educational organisational unit for the subject

Department of Environmental Economics and Sustainability

### Subject website

[edu.gtk.bme.hu/](http://edu.gtk.bme.hu/)

### Language of the subject

magyar - HU

### Curricular role of the subject, recommended number of terms

#### 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 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, Green finance.

#### Skills

1. Understand how incentive schemes work;
2. Understand aspects of the impacts of the climate transition on economic sectors;
3. Able 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. Able 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
- total: 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) 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

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

#### 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 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