



**SUBJECT DATASHEET**

**METHODS IN ERGONOMICS**

**BMEGT52MN28**

# I. SUBJECT DESCRIPTION

## 1. SUBJECT DATA

**Subject name**

METHODS IN ERGONOMICS

**ID (subject code)**

BMEGT52MN28

**Type of subject**

contact lessons

**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**

3

**Subject Coordinator**

<i>Name</i>	<i>Position</i>	<i>Contact details</i>
Dr. Szabó Bálint	assistant professor	szabo.balint@gtk.bme.hu

**Educational organisational unit for the subject**

Department of Ergonomics and Psychology

**Subject website**

<https://edu.gtk.bme.hu>

**Language of the subject**

magyar – HU

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

Programme: **Engineering Management programme ERG (from 2018)**  
Subject Role: **Compulsory for the specialisation**  
Recommended semester: **3**

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**Direct prerequisites**

<b><i>Strong</i></b>	Alkalmazott termékmenedzsment
<b><i>Weak</i></b>	Nincs
<b><i>Parallel</i></b>	None
<b><i>Exclusion</i></b>	None

**Validity of the Subject Description**

Approved by the Faculty Board of Faculty of Economic and Social Sciences, Decree No: 580515/8/2024 registration number. Valid from: 26.06.2024.

## 2. OBJECTIVES AND LEARNING OUTCOMES

### Objectives

The basic objective of the course is to learn and master research methods applicable in user-centred product development.

### Academic results

#### Knowledge

1. Comprehensive knowledge of the research methodologies used in ergonomics, their classification.
2. Knowledge of the analytical and empirical methods used in user-centred product development.
3. Knowledge of the conditions for applying research methods relevant to user-centred product development, both in industrial practice and in scientific research.
4. Knowledge of the main quantitative research methods relevant to user-centred product development and the necessary basics of probability theory and mathematical statistics.
5. Knowledge of the main qualitative research methods relevant to user-centred product development and the necessary basics of probability theory and mathematical statistics.

#### Skills

1. They use a multifaceted, interdisciplinary approach to identify questions related to specific professional problems and are able to explore and formulate the detailed theoretical and practical background of the research methodological options needed to answer them.
2. They apply the theories and related research methodological terminology in an innovative way to solve problems.
3. They use the full range of research methodologies in the field at a high level, and processes publication sources in Hungarian and foreign languages, and has the knowledge of effective information research and data processing.
4. They are able to apply statistical tools for in-depth research activities.
5. Creativity, flexibility, good communication, reasoning, collaboration and problem-solving skills in the practical design and implementation of user-centred research.
6. Ability to design and conduct user-centred research at a high professional level, independently or in working groups.

#### Attitude

1. They are characterised by a willingness to learn continuously about user-centred research, a broad and in-depth education, a well-developed capacity for analysis and synthesis, and sensitivity to the environment.
2. They are characterised by strong research ethic and a critical and self-critical sense.
3. They are characterized by system-level thinking and approach.

#### Independence and responsibility

1. They are characterized as initiator, and by responsibility and decision-making ability.
2. They independently monitor technical, technological, economic, financial, legal, and social changes in their field of expertise.
3. They plan and carries out their activities independently.
4. They participate in research and development projects; in the project team, they mobilize their theoretical and practical knowledge and skills in autonomous ways, in cooperation with other members of the team to achieve the goals.
5. They apply a wide range of user-centred research methods and techniques independently in practice in contexts of different complexity and predictability.

### Teaching methodology

Lectures, exercises, frequent written and oral communication, use of IT tools and techniques, group and individual assignments.

### Materials supporting learning

- Antalovits M., Süle M. (szerk.) (2012): Termékmenedzsment. Typotext Kiadó, Budapest.
- Hercegi K., Izsó L. (szerk.) (2007): Ergonómia. Typotext Kiadó, Budapest.
- Izsó L., Antalovits M. (1997): Bevezetés az információ-ergonómiába. Emberi tényezők az információ-technológiák fejlesztésében, bevezetésében és alkalmazásában. BME Ergonómia és Pszichológia Tanszék, Budapest.
- Sanders, M.S., McCormick, E.J. (1993): Human Factors in Engineering and Design. McGraw-Hill, London (7th ed.).
- Szabó B. (2023): Felhasználó-központú szempontok megjelenése a szoftverfejlesztés folyamataiban: Szoftverek termékmenedzsmentje a cégek sokszínű gyakorlatában. BME Gazdálkodás- és Szervezéstudományi Doktori Iskola Ergonómia és Pszichológia Tanszék, Budapest.
- Stanton, N.A. & al. (2005): Human Factors Methods – A Practical Guide for Engineering and Design. Ashgate, Aldershot.

## II. SUBJECT REQUIREMENTS

### TESTING AND ASSESSMENT OF LEARNING PERFORMANCE

#### General Rules

The assessment of the learning outcomes set out in 2.2 is based on a partial performance assessment (methodological submission) and a summative learning assessment (oral assessment).

#### Performance assessment methods

Detailed description of the performance assessments carried out during the academic term: 1. Participatory performance assessment (methodological assignment): a complex way of assessing the knowledge, skills, attitudes, autonomy and responsibility of the subject, which is carried out using a research methodological assignment (assignment) closely related to the topic of the student's thesis, the content, requirements and deadline for submission of which are determined by the course leader. 2. Summative performance assessment:

during the oral assessment, the student will present the course knowledge in general and through an example related to the actual thesis topic.

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

- Participatory performance assessment (methodological assignment): 25
- Summative performance assessment: 75
- Total: 100

#### Percentage of exam elements within the rating

#### Conditions for obtaining a signature, validity of the signature

The signature is conditional on a successful (minimum 50%) partial performance assessment (methodological assignment).

#### Issuing grades

Excellent	91
Very good	85–90
Good	70–84
Satisfactory	55–69
Pass	40–54
Fail	> 40

#### Retake and late completion

1) The late submission of the methodological assignment can be submitted electronically (Moodle interface) until 23:59 on the last day of the late completion period. 2) The submitted and accepted assignment may be corrected by the deadline and in the manner specified

in 1), with a deduction of 5 points. 3) The summative academic assessment may be made up or corrected free of charge during the late completion period. In case of correction, the latter of the previous and the new result will be considered. 4) If the student cannot obtain a grade other than unsatisfactory by making up the grade by point 3), they may make a second attempt to correct the first unsuccessful attempt.

#### Coursework required for the completion of the subject

Participation in contact lessons	28
Preparing for summative performance	32
Preparing for methodological assignment	30
Total	90

#### Approval and validity of subject requirements

Consulted with the Faculty Student Representative Committee, approved by the Vice Dean for Education, valid from: 03.06.2024.

# III. COURSE CURRICULUM

## THEMATIC UNITS AND FURTHER DETAILS

### Topics covered during the term

The course consists of thematic blocks linked to user-centred research methodologies to achieve the learning outcomes set out in section

2.2.

- 1 Types and classification of ergonomic methods
- 2 Questionnaires to understand user needs
- 3 Interview surveys to understand user needs
- 4 Focus group to understand user needs
- 5 Projective techniques for understanding user needs
- 6 Q-methodology for the objective analysis of subjective perceptions
- 7 KJ (Kawakita Jiro), also known as affinity diagram, as a method to support people-centred product management
- 8 A method for testing the usability of low-fidelity products
- 9 A method to test the usability of high-fidelity products
- 10 Ergonomic assessment and design of industrial and office workplaces

### Additional lecturers

Dr. Szabó Bálint	egyetemi adjunktus	szabo.balint@gtk.bme.hu
Dr. Geszten Dalma	egyetemi adjunktus	geszten.dalma@gtk.bme.hu
Dr. Kapusy Kata	egyetemi adjunktus	kapusy.kata@gtk.bme.hu
Dr. Tóvölgyi Sarolta	egyetemi adjunktus	tovolgyi.sarolta@gtk.bme.hu
Dr. Pataki-Bittó Fruzsina	egyetemi adjunktus	pataki.bitto.fruzsina@gtk.bme.hu
Csernák-Csorba Klaudia	egyetemi tanársegéd	klaudia.csernak-csorba@edu.bme.hu
Babicsné Horváth Mária	egyetemi tanársegéd	babicsne.horvath.maria@gtk.bme.hu

### Approval and validity of subject requirements