SUBJECT DATASHEET

Technology theories

BMEGT41BX4U000-00

I. SUBJECT DESCRIPTION

1. SUBJECT DATA

Subject name
Technology theories

ID (subject code) BMEGT41BX4U000-00

Type of subject
contact lessons

Course types and lessons

Type	*Lessons*
Lecture	2
Practice	0
Laboratory	0

Type of assessment
seminar grade

Number of credits
3

Subject Coordinator

Name	*Position*	*Contact details*
Héder Mihály	associate professor	heder.mihaly@gtk.bme.hu

Educational organisational unit for the subject
Department of Philosophy and History of Science

Subject website
www.filozofia.bme.hu

Language of the subject
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: 580501/3/2025 registration number. Valid from: 2025.07.10.

2. OBJECTIVES AND LEARNING OUTCOMES

Objectives

The goal of this course is to introduce the theories of technology regarding: its place in a society, the possibilities of control, how it changes; how innovation happens and how it shapes the future. The main topics covered are: engineering epistemology; large technological systems; push and pull innovation models; Schumpeterian innovation; risk and innovation; technology diffusion and adoption models; control and regulation of technology; technological startup theories. The course is facilitated by case studies. These may include: history of Kanban and agile methodology; history of AI; industrial revolutions; history of prizes like the X-prize; technological disasters; posthuman technology; internet; GMO; etc. This is an indicative list of case studies, some, but not all of these case studies will be discussed, based on student preference, and new ones may be introduced.

Academic results

Knowledge

1. knows the basic activities, facts, limits of engineering and technology
2. knows the basic methdodological and legal contest of impact assessments and impact studies
3. knows the epistemic methods and their limits of engineering management, as well as the ethical constraints
4. knows and understands the aspects, foundations and terminology of the ancillary topics indispensable to her main profession: environmental protection, quality assurance, legal, economical and managerial fields.

Skills

1. applies integrated knowledge, to solve multi-disciplinary problems
2. possesses a keen sense of responsibility, quality; capability assessment and self-assesment, analysis and synthesis
3. is able to rely on intarnational professional background literature

Attitude

1. open to self-education and self-improvement
2. is able to think in systems

Independence and responsibility

1. possesses a sense of responsibility for sustainable development
2. stands up for the fundamental values of the field

Teaching methodology

lecture and guided discussion

Materials supporting learning

- Rudi Volti: Society and Technological Change, Worth Publishers 2017.
- Joel Mokyr: Levers of Riches, Oxford University Press, 1990.
- COLLINGRIDGE, David. The social control of technology. (1982). ISBN: 978-0312731687

II. SUBJECT REQUIREMENTS

TESTING AND ASSESSMENT OF LEARNING PERFORMANCE

General Rules

The evaluation of the outcomes outlined in 2.2 by class activity, simple homework and three midterm exams.

Performance assessment methods

Three midterm exams, complemented by extra points earned during lectures and points for the homework.

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

- **1. general course assessment**: 20
- **2. general course assessment**: 20
- **3. general course assessment**: 20
- **homework**: 30
- **extra points**: 10
- **total**: 100

Percentage of exam elements within the rating

Conditions for obtaining a signature, validity of the signature

Issuing grades

Excellent	94
Very good	88-93
Good	75-87
Satisfactory	61-74
Pass	50-60
Fail	0-49

Retake and late completion

Two out of the three midterms may be re-taken in the retake period. The better score will be counted for any midterms.

Coursework required for the completion of the subject

participation in contact hours	28
Homework	14
preparation for contact hours	48
Grand Total	90

Approval and validity of subject requirements

Consulted with the Faculty Student Representative Committee, approved by the Vice Dean for Education, valid from: 07.07.2024.

III. COURSE CURRICULUM

THEMATIC UNITS AND FURTHER DETAILS

Topics covered during the term

Overview of technology definitions and theories Relation between technology and social well-being Schumpeterian innovation Technology
and Risk epistemology of engineering Technology and regulation Push, Pull, Cycles Technological lock-in Technology readiness levels leapfrog
and other adoption modes Risk and innovation technology assessment

Additional lecturers

Approval and validity of subject requirements