SUBJECT DATASHEET

Technology Theories (Civil Engineering MSc)

BMEGT41MB52

I. SUBJECT DESCRIPTION

1. SUBJECT DATA

Subject name
Technology Theories (Civil Engineering MSc)

ID (subject code)	BMEGT41MB52

Type of subject
contact teaching

Course types and lessons

Type	*Lessons*
Lecture	2
Practice	0
Laboratory	0

Type of assessment
midterm grade

Number of credits
2

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
angol - en

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: 580884/8/2023 registration number. Valid from: 29.11.2023.

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 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 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

Attitude

1. open to self-education and self-improvement

Independence and responsibility

1. open to self-education and self-improvement

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 learning outcomes detailed in 2.2. are measured based on two midterm exams and activity on the lectures.

Performance assessment methods

Two midterm exams, one in the middle of the semester, another at the end of the semester, complemented by extra points earned during lectures.

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

- **Two midterm exams**: 80
- **Extra points earned on lecture**: 20

Percentage of exam elements within the rating

Conditions for obtaining a signature, validity of the signature

-

Issuing grades

Excellent	94-100
Very good	88-93
Good	75-87
Satisfactory	61-74
Pass	50-60
Fail	0-49

Retake and late completion

The two midterms may be re-taken during the retake period. In case of an improved score, the better score is taken into account.

Coursework required for the completion of the subject

classroom work / tantermi munka	28
homework / házi feladat	32

Approval and validity of subject requirements

Consulted with the Faculty Student Representative Committee, approved by the Vice Dean for Education, valid from: 02.05.2022.

III. COURSE CURRICULUM

THEMATIC UNITS AND FURTHER DETAILS

Topics covered during the term

- Push & Pull; - Gartner and other cycles. - Shumpeterian innovation; - technological lock-in - technology readiness levels - leapfrog technology adoption; - risk and innovation; - technology assessment 1. Big picture 1: technology and the future of humanity 2. Big picture 2: utopias and distopias 3. Technology as control 1: social dilemmas 4. Technology as control 2: lock-in, technology assessment 5. Technology
and a nation's wealth 1: risk, innovation, path-dependence 6. Technology and a nations' wealth 2: cultural factors 7. Technology and R&D 1: epistemology of engineering 8. Technology and R&D 2: technology readiness levels 9. Technology and R&D 3: disruptive innovation
and startups 10. Large Technological Systems 1: case studies 11. Large Technological Systems 2: case studies (diffusion 12. Large Technological
Systems 3: case studies (regulation)

Additional lecturers

Approval and validity of subject requirements