## I. Subject Specification

1. Basic Data

1.1 Title

Technology Theories

1.2 Code

BMEGT41MB52

1.3 Type

Module with associated contact hours

1.4 Contact hours

| Type | Hours/week / (days) |
|------|---------------------|
| Lecture | 2 |

1.5 Evaluation

Midterm grade

1.6 Credits

2

1.7 Coordinator

| name | Dr. Mihály Héder |
|------|------------------|
| academic rank | Associate professor |
| email | mihaly.heder@gtk.bme.hu |

1.8 Department

Faculty of Economic and Social Sciences - Department of Philosophy and History of Science

1.9 Website

https://epito.bme.hu/BMEEODH001
https://fiek2.mywire.org/course/view.php?id=3561

1.10 Language of instruction

english

1.11 Curriculum requirements

Compulsory in the Construction Information Technology Engineering (MSc) programme

1.12 Prerequisites

1.13 Effective date

1 September 2017

2. Objectives and learning outcomes

2.1 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.

2.2 Learning outcomes

Upon successful completion of this subject, the student:

A. Knowledge

1. ismeri az ember és az épített környezet közötti kölcsönhatásokat,
2. ismeri és érti a műszaki szakterülethez kapcsolódó és a szakmagyakorlás szempontjából fontos más területek, elsősorban a környezetvédelmi, a minőségbiztosítási, a jogi, a közgazdasági és a gazdálkodási szakterületek terminológiáját, alapjait és szempontjait;

B. Skills

1. integrált ismereteket alkalmaz, közreműködik multidiszciplináris problémák megoldásában,

C. Attitudes

1. nyitott az önművelésre és önfejlesztésre,
2. munkája során vizsgálja a kutatási, fejlesztési és innovációs célok kitűzésének lehetőségét és törekszik azok megvalósítására;

D. Autonomy and Responsibility

1. nyitott az önművelésre és önfejlesztésre,
2. munkája során vizsgálja a kutatási, fejlesztési és innovációs célok kitűzésének lehetőségét és törekszik azok megvalósítására;

2.3 Methods

Guided discussion and debate

2.4 Course outline

| Week | Topics of lectures and/or exercise classes |
|------|--------------------------------------------|
| 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) |

The above programme is tentative and subject to changes due to calendar variations and other reasons specific to the actual semester. Consult the effective detailed course schedule of the course on the subject website.

2.5 Study materials

- 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

2.6 Other information

2.7 Consultation

This Subject Datasheet is valid for:

Inactive courses

## II. Subject requirements

Assessment and evaluation of the learning outcomes

### 3.1 General rules

### 3.2 Assessment methods

| Evaluation form | Abbreviation | Assessed learning outcomes |
|---|---|---|
| | | A.1-A.2; B.1; C.1-C.2; D.1-D.2 |

The dates of deadlines of assignments/homework can be found in the detailed course schedule on the subject's website.

### 3.3 Evaluation system

| Abbreviation | Score |
|---|---|
| | |
| Sum | 100% |

### 3.4 Requirements and validity of signature

### 3.5 Grading system

| Grade | Points (P) |
|---|---|
| excellent (5) | |
| good (4) | |
| satisfactory (3) | |
| passed (2) | |
| failed (1) | |

### 3.6 Retake and repeat

### 3.7 Estimated workload

| Activity | Hours/semester |
|---|---|
| | |
| Sum | 60 |

### 3.8 Effective date

1 September 2022

This Subject Datasheet is valid for:

Inactive courses