SYLLABUS

Name: Technology Assessment Name in Polish: Ocena technologii Name in English: Technology Assessment

Information on course:

Course offered by department:	Faculty of Organisation and Management
Course for department:	Silesian University of Technology
Study level and form:	Bachelor's degree, Full-time
Term:	winter semester 2025/2026
Coordinator of course edition:	Prof. dr hab. inż. Jan Kaźmierczak

Default type of course examination report:

Language:	
English	
Course homepage:	
https://platforma.polsl.pl/roz/	
ECTS	

Short description:

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The lecture content uses both literature information and research results conducted by employees of the Faculty of Organization and Management at the Silesian University of Technology in cooperation with researchers from other academic centres that concern technical and non-technical problems of assessing the impact of innovative technical means and their manufacturing processes and use (exploitation) on humans and their environment. The experiences from the conducted research and the cases described in the literature allow, in addition to presenting the methodology, also showing examples of the analysis of the functioning conditions of technical means and systems, affecting both the work environment and technical and social environment of a human. The lecture aims to prepare students to make rational decisions in manufacturing and using technical means, as well as their disposal or reuse to protect the environment, following the 5R formula.

Description:

Lecture content:

- 1. Explanation of the 5W+H paradigm.
- 2. Basic concepts and terms: quantitative and qualitative assessment, types of assessment
- 3. Objectives of assessment: identifying the need for the assessment, determining the mode of the evaluation, determining the purpose of the assessment, methods and means of obtaining information about the subject of the assessment, selection of criteria and methods/methods of assessment with its purpose
- 4. The multifaceted significance of technology assessment processes: technological aspects, legal aspects, environmental aspects, and social aspects.
- 5. Selected examples of technological diversity.
- 6. Discuss the typology of methods and procedures suitable for technology assessment. TRL (Technology Readiness Level) scale
- 7. Evaluation of medical technologies as an example of the complexity of the evaluation process.
- 8. Stakeholders in technology evaluation processes.
- 9. Examples of technology evaluation process models.

Bibliography:

Basic literature:

J. Kaźmierczak, "Technology Assessment-wyzwanie dla inżynierów XXI wieku," 2012,

D. Banta, "What is technology assessment?," 2009

A. Grunwald, "The objects of technology assessment. Hermeneutic extension of consequentialist reasoning," J Responsible Innov, vol. 7, no. 1, 2020, doi: 10.1080/23299460.2019.1647086.

A. Grunwald, "Technology assessment or ethics of technology? Reflections on technology development between social sciences and philosophy," Ethical Perspect, vol. 6, no. 2, 1999.

J. C. M. Van Eijndhoven, "Technology Assessment: Product or Process?," Technol Forecast Soc Change, vol. 54, no. 2–3, 1997, doi: 10.1016/S0040-1625(96)00210-7.

J. Sadowski, "Office of Technology Assessment: History, implementation, and participatory critique," Technol Soc, vol. 42, 2015, doi: 10.1016/j.techsoc.2015.01.002.

A. Rip, "Technology Assessment," in International Encyclopedia of the Social & Behavioral Sciences: Second Edition, 2015. doi: 10.1016/B978-0-08-097086-8.85036-9.

J. Kaźmierczak, "About utilizing the concept of the Engineering of Needs (EoN) in the Technology Assessment (TA) approach," 2017, [Online]. Available: www.ijesi.org

K. Klincewicz and A. Manikowski, Ocena, rankingowanie i selekcja technologii. 2013. doi: 10.7172/2013.wwz.13.

P. Stankiewicz, "Klasyczna i partycypacyjna ocena technologii," Studia BAS, vol. 3, no. 43, 2015.

J. Kaźmierczak, "Ocena oddziaływań społecznych innowacyjnych produktów i technologii ("Technology Assessment")," in Innowacje w zarządzaniu i inżynierii produkcji, R. Knosala, Ed., Oficyna Wydawnicza Polskiego Towarzystwa Zarządzania Produkcją, 2013, pp. 124–137.

Supplementary bibliography:

search results for the latest studies (since 2020) in literature databases (e.g., Google Scholar, Mendeley, Clarivate) using keywords such as "assessment methods" and "technology assessment."

Learning outcomes:

1. Student knowledge:

1.1. Knows and understands basic concepts and terms related to the paradigm of "Technology Assessment," and knows and understands the essential tasks related to such processes occurring in urban organizations.

1.2. Understand the problems, including potential difficulties, occurring in the processes of multi-faceted assessment of means and methods of manufacturing technical resources and implementing service processes.

1.3. Knows and understands the structure of stakeholders in technology assessment processes and their involvement in implementing such processes.

2. Student skills:

2.1. Can critically analyze the functioning of existing solutions, evaluate and compare such solutions, diagnose problems, and propose appropriate improvements and innovations in this area.

2.2. Can select and use appropriate techniques, skills, and modern support tools.

2.3. Can search for source materials relevant to the area of study based on a set of keywords developed independently, using available literature search tools.

3. Social competencies of the student: is ready to perform professional roles responsibly, adhere to professional ethics and require this of others, care for the achievements and traditions of the profession; is aware of the importance and understands the non-technical aspects and effects of engineering and entrepreneurial activities, taking into account the specific nature of cities as areas of such activities.

Assessment methods and assessment criteria:

Assessment:

1. Attendance at lectures + summary essay (post-work) for each lecture (lecture block)

2. Final assessment: final paper (in the form of an essay) discussed orally with the use of a presentation (MS PowerPoint)

Requirements for passing the course:

1. Attendance at classes: One absence is permitted. Each additional absence must be justified and made up on an ongoing basis in the form of an oral presentation of the issues discussed in the class in which the student was absent—after agreeing on a date with the lecturer during their office hours.

2. After each block of lectures, the learning outcomes are assessed through original essays (so-called post-work) on topics specified by the lecturer. The lecturer makes the topic of each subsequent essay available on the Remote Education Platform in a format that allows the student to "paste" their work (in *.doc or *.docx format, or *.pdf if necessary).

The lecturer assesses the essays on the Remote Education Platform, taking into account the following criteria:

• Correct and substantive definition of the topic of the paper;

• Relevance to the subject matter of the lectures and other activities and tasks carried out during the classes (e.g., analysis of case studies);

- Correctly formulated general and specific objectives of the paper, correct thematic scope, and comprehensive description of the topic;
- Correctly selected illustrative and bibliographic resources (literature sources); if applicable, correctly selected attachments.

Each essay is graded on a scale of 0–100 points.

Failure to submit an essay is equivalent to a grade of 0 points.

Assessment criteria: total points for essays divided by the number of required essays (number of lecture blocks)

Average essay grade required to obtain a passing final grade and be admitted to the final presentation:

100–91 points = grade 5.0 90–81 points = grade 4.5 80–71 points = grade 4.0 70–61 points = grade 3.5 60–51 points = grade 3.0 50 points and below = no possibility of presenting the final thesis

Practical placement:

n/a