

SYLLABUS

Name: *Engineering Design (PBL)*

Name in Polish: Projektowanie inżynierskie (PBL)

Name in English: *Engineering Design (PBL)*

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:	summer semester 2025/2026
Coordinator of course edition:	Tomasz Wałek Ph.D., Eng.

Default type of course examination report:
PASS
Language:
English
Course homepage:
https://platforma.polsl.pl/roz/
ECTS
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Short description:
Students are supposed to work in a team environment to design an engineering system. It will foster creative thinking, diversified background exposure, communication, and collaboration skills.
Description:
Lecture: 1. Design process. 2. Creativity, and problem solving. 3. Team building. 4. Safety, hazard, environmental consideration. 5. Engineering economics and marketability. Laboratory class: 1. Proposal preparation. 2. Communication skills (report, proposal writing, oral presentation). Project: 1. Project planning and management. 2. Engineering ethics. Number of hours with direct participation of academic teachers or other persons teaching courses and students: Lecture: 15, Laboratory class: 15, Project: 30 Student's own work: Preparation for the test: 30 Preparation for the laboratory classes: 20 Preparation of the project report: 40 Total workload: 150
Bibliography:
1. Stefanos Z., Makower, J., Yock, P., Biodesign: The Process of Innovating Medical Technologies, New York, Cambridge University Press, 2010, 2. Dym, C. L., Engineering Design: A Project Based Introduction, New York, Wiley, 2003, 3. Moore, J. H., Davis, C. C., and Coplan, M. A., Building Scientific Apparatus: A Practical Guide to Design and Construction, Addison-Wesley, 1989, 4. Carper, K. L., Forensic Engineering, New York, Elsevier, 1989, 5. Burgess, J., Designing for Humans: The Human Factor in Engineering, Princeton, 1986.
Learning outcomes:
K1A_W3 - Basic engineering processes and technologies in the life cycle of technical equipment, objects and systems and ways of solving typical engineering tasks, particularly in relation to the organization of production processes and production management, K1A_U5 - Make a critical analysis of the functioning of existing technical and technological solutions in production systems function, evaluate these solutions and suggest appropriate improvements and innovations in this regard, K1A_U6 - Design - in accordance with the given specification – the new and supervise existing objects, production and exploitation processes and systems, using appropriate methods, techniques, tools and materials, K1A_U7 - Work individually and in a team, assuming different roles in it, plan and organize this work, as well as interact with other people as part of

teamwork (also of an interdisciplinary nature) using specialist terminology and modern information and communication technologies, and take part in the debate, K1A_K1 - Critical evaluation of knowledge and received content, recognition of the importance of knowledge in solving cognitive and practical problems, and consulting experts in the event of difficulties in solving problems on their own.
Assessment methods and assessment criteria:
Lectures – written single-choice test. Laboratory classes – individual written reports. Project report – teamwork grade.
Practical placement: