GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

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|---|---|---|---|
| Subject name and code | CDIO Project I, PG_00050284 | | |
| Field of study | Mechanical Engineering | | |
| Date of commencement of studies | October 2024 | Academic year of realisation of subject | 2026/2027 |
| Education level | first-cycle studies | Subject group | Optional subject group |
| Mode of study | Full-time studies | Mode of delivery | at the university |
| Year of study | 3 | Language of instruction | Polish |
| Semester of study | 5 | ECTS credits | 4.0 |
| Learning profile | general academic profile | Assessment form | assessment |
| Conducting unit | Division of Manufacturing and Production Engineering -> Institute of Manufacturing and Materials Technology -> Faculty of Mechanical Engineering and Ship Technology -> Faculties of Gdańsk University of Technology | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | dr inż. Norbert Piotrowski | |
| | Teachers | dr inż. Norbert Piotrowski | |

**Lesson types**

| Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
|---|---|---|---|---|---|---|
| Number of study hours | 0.0 | 0.0 | 0.0 | 30.0 | 0.0 | 30 |

E-learning hours included: 0.0

eNauczanie source addresses:

Moodle ID: 7662 CDIO Project I, P, MiBM, I st., sem. 5, zima 2026/27 (PG_00050284)
https://enauczanie.pg.edu.pl/2025/course/view.php?id=7662

**Learning activity and number of study hours**

| Learning activity | Participation in didactic classes included in study plan | Participation in consultation hours | Self-study | SUM |
|---|---|---|---|---|
| Number of study hours | 30 | 5.0 | 65.0 | 100 |

**Subject objectives**

Learning the skills that are necessary in the design, implementation and operation of real systems and products. Gaining technical knowledge, communication skills, teamwork and problem solving.

## Learning outcomes

| Course outcome | Subject outcome | Method of verification |
|---|---|---|
| K6_U09 | The student is able to develop the technological process ot typical mechanical parts. | [SU1] Assessment of task fulfilment |
| K6_U01 | The student is able to find information from various sources necessary to solve the problems presented in the project. | [SU2] Assessment of ability to analyse information |
| [K6_U02] is able to work in a team and individually, also in multi-disciplinary teams, is able to draw a plan of completing a construction or technological design, shows self-learning abilities | The student is able to create a project team, organize the work of the team and manage it efficiently. In particular: define roles in the project, set competences, tasks and set goals and division of work. The student has the skills to create a plan of any construction or technological project. | [SU4] Assessment of ability to use methods and tools |
| [K6_K01] is aware of the need for complementing the knowledge throughout the whole life, is able to select proper methods of teaching and learning, critically assesses the possessed knowledge; is aware of the importance of professional conduct and following the rules of professional ethics; is able to show resourcefulness and innovation in the realisation of professional projects | The student is aware of the need for lifelong learning, improving professional, personal and social competences resulting from the changing reality and the variety of projects. The student is ready to start work related to design. | [SK5] Assessment of ability to solve problems that arise in practice |
| [K6_U03] is able to identify, formulate and develop the documentation of a simple design or technological task, including the description of the results of this task in Polish or in a foreign language and to present the results using computer software or other aiding tools | The student is able to discuss the subsequent phases and tasks of the project life cycle. He can create technical documentation for individual project tasks. The student knows what computer programs can be used to support the creation of individual elements of documentation. | [SU3] Assessment of ability to use knowledge gained from the subject |

## Subject contents

Course content – project

Introduction and explanation of the meaning of the CDIO initiative. Team building session. Building team members' engagement in stationary and remote work. Tools for creating space for online teamwork. Ways to build active communication, conduct discussions and presentations online. Design stages: adopting a team project plan, developing a Gantt schedule, determining the necessary resources and how to obtain them. Designing in accordance with the principles of the design thinking method: empathy, problem definition, generating ideas, building prototypes and testing. Assessment of projects and presentations.

## Prerequisites and co-requisites

Knowledge of basics in the field of product modeling in CAD systems, machine manufacturing processes, including the technologies of mechanical processing of their components and information techniques.

## Assessment methods and criteria

| Subject passing criteria | Passing threshold | Percentage of the final grade |
|---|---|---|
| Project | 60.0% | 100.0% |

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|---|---|---|
| Recommended reading | Basic literature | Edward Crawley, Johan Malmqvist, Sören Östlund, Doris Brodeur: Rethinking Engineering Education, The CDIO Approach, 2007.<br><br>Verganti Roberto: Design Driven Innovation: Changing the Rules of Competition by Radically Innovating What Things Mean, 2009.<br><br>Tim Brown: Change by Design: How Design Thinking Transforms Organizations and Inspires Innovation, 2009. |
| | Supplementary literature | Chrościcki Zbigniew: Zarządzanie projektem zespołami zadaniowymi, Wyd. C.H. Beck, Warszawa 2001.<br><br>Trocki Michał: Metodyki zarządzania projektami, Bizarre, Warszawa 2011. |
| | eResources addresses | |
| Example issues/ example questions/ tasks being completed | The use of new technologies in the design of products and processes.<br><br>Additive manufacturing methods.<br><br>The use of virtual and augmented reality technologies.<br><br>Application of artificial intelligence algorithms to solve technical problems.<br><br>Development of the technological process using CAD / CAM systems.<br><br>Robotics in advance manufacturing systems. | |
| Practical activites within the subject | Not applicable | |

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