GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	CDIO Project I, PG_00050284		
Field of study	Mechanical Engineering		
Date of commencement of studies	October 2021	Academic year of realisation of subject	2023/2024
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	Zakład Technologii Maszyn i Automatyzacji Produkcji -> Institute of Manufacturing and Materials Technology -> Faculty of Mechanical Engineering and Ship Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Norbert Piotrowski	
	Teachers	dr inż. Norbert Piotrowski dr inż. Piotr Sender	

Lesson types and methods of instruction	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						

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_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 able to find information from various sources necessary to solve the problems presented in the project.	[SK2] Assessment of progress of work
[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_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.	[SU4] Assessment of ability to use methods and tools [SU1] Assessment of task fulfilment
K6_U01	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.	[SU5] Assessment of ability to present the results of task [SU3] Assessment of ability to use knowledge gained from the subject
K6_U09	The student has the skills necessary in the design, implementation and operation of real systems and products.	[SU1] Assessment of task fulfilment

Subject contents

Wprowadzenie oraz wyjaśnienie znaczenia inicjatywy CDIO. Team building session. Budowanie zaangażowania członków zespołu w pracy stacjonarnej i zdalnej. Narzędzia do tworzenia przestrzeni dla pracy w zespole online. Sposoby budowania aktywnej komunikacji, prowadzenia dyskusji i prezentacji online. Etapy projektowania: przyjęcie planu projektu zespołowego, opracowanie harmonogramu Gantta, określenie niezbędnych zasobów i sposobu ich pozyskania. Projektowanie zgodnie z zasadami procesu design thinking: empatia, definiowanie problemu, generowanie pomysłów, budowanie prototypów i testowanie. Ocena projektów i prezentacji.

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	50.0%	100.0%

Recommended reading

Basic literature	Edward Crawley, Johan Malmqvist, Sören Östlund, Doris Brodeur: Rethinking Engineering Education, The CDIO Approach, 2007. Verganti Roberto: Design Driven Innovation: Changing the Rules of Competition by Radically Innovating What Things Mean, 2009. 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. Trocki Michał: Metodyki zarządzania projektami, Bizarre, Warszawa 2011.

	eResources addresses	Adresy na platformie eNauczanie: CDIO Project I, P, MiBM, I stop., sem. 05, zimowy 23/24 (PG_00050284) - Moodle ID: 34841 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=34841
Example issues/ example questions/ tasks being completed	The use of new technologies in the design of products and processes. Additive manufacturing methods. The use of virtual and augmented reality technologies. Application of artificial intelligence algorithms to solve technical problems. Development of the technological process using CAD / CAM systems. Robotics in advance manufacturing systems.	
Work placement	Not applicable	