GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	CDIO project II, PG_00050285						
Field of study	Mechanical Engineering, Mechanical Engineering						
Date of commencement of studies	October 2020		Academic year of realisation of subject	2022/2023			
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	English			
Semester of study	6		ECTS credits	4.0			
Learning profile	general academic profile		Assessment form	assessment			
Conducting unit	Institute of Manufacturing and Materials Technology -> Faculty of Mechanical Engineering and Ship Technology						
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Piotr Mioduszewski					
	Teachers	dr hab. inż. Piotr Mioduszewski					
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	To learn the skills necessary in the design, implementation and operation of real systems and products. Gain technical knowledge, communication, teamwork and problem-solving skills						

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 aware of the need for lifelong learning, improving professional, personal and social competencies resulting from the changing reality and diversity of the projects carried out. The student is ready to undertake work related to design.	[SK5] Assessment of ability to solve problems that arise in practice [SK3] Assessment of ability to organize work
[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 successive phases and tasks of the project life cycle. The student knows how to create technical documentation for specific project tasks. The student knows what computer programs can be used to support the creation of the various elements of documentation.	[SU4] Assessment of ability to use methods and tools [SU1] Assessment of task fulfilment
K6_U01	The student is independently able to obtain information from various sources necessary to solve the problems posed 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 efficiently manage it. In particular: define roles in the project, establish competence, tasks and set goals and division of labor. The student has the skills to create a plan for any construction or technological project.	[SU4] Assessment of ability to use methods and tools
K6_U09	The student can plan the process of manufacturing, assembly and quality control of typical tools and machine parts.	[SU1] Assessment of task fulfilment

Subject contents

Continuation of projects started in Part I of the class. Stages of design: adopting a team project plan, developing a Gantt schedule, determining the necessary resources and how to obtain them. Designing according to the principles of the design thinking process: empathy, defining the problem, generating ideas, building prototypes and testing. Evaluation of designs and presentations.

Prerequisites and co-requisites

Knowledge of the basics of modeling in CAD, machine manufacturing processes including technologies for machining their components, and information techniques.

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Projecy	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	

Example issues/ example questions/ tasks being completed

Use of new technologies in product and process design.Methods of incremental manufacturing.Use of virtual and augmented reality technologies.Application of artificial intelligence algorithms to solve technical problems.Development of technological process using CAD/CAM systems.Robotic systems in manufacturing systems.

Work placement

Not applicable