GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	, PG_00070062		
Field of study	Mechanical Engineering		
Date of commencement of studies	February 2025	Academic year of realisation of subject	2025/2026
Education level	second-cycle studies	Subject group	
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	2	Language of instruction	Polish -
Semester of study	3	ECTS credits	6.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Division of Applied Mechanics and Biomechanics -> Institute of Mechanics and Machine Design -> Faculty of Mechanical Engineering and Ship Technology -> Faculties of Gdańsk University of Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Marek Chodnicki	
	Teachers		

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	10.0	0.0	0.0	50.0	0.0	60

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	60	10.0	80.0	150

Subject objectives

Fundamentals of Concurrent Engineering in Design and Manufacturing

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K7_U101] is able to formulate complex research problems and adopts appropriate methods, obtaining innovative solutions, cooperating with other people, both as a leader and a team member	the student formulates complex research problems in concurrent engineering	[SU1] Assessment of task fulfilment [SU4] Assessment of ability to use methods and tools
[K7_U04] creatively designs or modifies devices, processes or systems specific to Mechanics and Mechanical Engineering, using computer-aided design systems in the form of technical documentation, taking into account aspects of economic analysis, using appropriate tools and techniques	the student creatively designs or modifies devices	[SU4] Assessment of ability to use methods and tools
[K7_U11] communicates and justifies opinions on specialized topics in a manner understandable to diverse audiences, including the use of modern techniques, including information technology	the student communicates and justifies their views on specialist topics in concurrent engineering	[SU4] Assessment of ability to use methods and tools
[K7_W13] explains the main principles of individual and teamwork organization, including various forms of entrepreneurship utilizing knowledge from the field of engineering and technical sciences and disciplines relevant to the course of study	the student explains the basic principles of organising individual and team work	[SW2] Assessment of knowledge contained in presentation

<table>
<tr><td>Subject contents</td><td>Course content – lecture
Fundamentals of concurrent engineering
Organisation of interdisciplinary teams and project management
Integration of product design with the manufacturing process
Methods and tools supporting concurrent engineering
Design for manufacturing, assembly and quality

Course content – project
Fundamentals of concurrent engineering
Organisation of interdisciplinary teams and project management
Integration of product design with the manufacturing process
Methods and tools supporting concurrent engineering
Design for manufacturing, assembly and quality</td></tr>
<tr><td>Prerequisites and co-requisites</td><td>Basic knowledge of mechanical engineering and mechatronics</td></tr>
<tr><td>Assessment methods and criteria</td><td><table><tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr><tr><td>pass the course</td><td>65.0%</td><td>100.0%</td></tr></table></td></tr>
<tr><td>Recommended reading</td><td><table><tr><td>Basic literature</td><td>in line with the course content:

Prasad, B. (1996). Concurrent Engineering Fundamentals. Volume I: Integrated Product and Process Organization. Prentice Hall PTR.
Prasad, B. (1996). Concurrent Engineering Fundamentals. Volume II: Integrated Product Development. Prentice Hall PTR.
Syan, C. S., & Menon, U. (Eds.). (1994). Concurrent Engineering: Concepts, Implementation and Practice. Chapman & Hall.
Shina, S. G. (1991). Concurrent Engineering and Design for Manufacture of Electronic Products. Springer.
Ulrich, K. T., Eppinger, S. D., & Yang, M. C. (2019/2020). Product Design and Development (7th ed.). McGraw-Hill Education.</td></tr><tr><td>Supplementary literature</td><td>-</td></tr><tr><td>eResources addresses</td><td></td></tr></table></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td>Analysis of the product development process using sequential and concurrent approaches
Assessment of product design in terms of manufacturability and assembly
Development of an integrated design and production preparation process
Use of digital tools in concurrent engineering
Case study of errors resulting from a lack of concurrent activities</td></tr>
<tr><td>Practical activites within the subject</td><td>Not applicable</td></tr>
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