



Subject card

Subject name and code	Life Cycle Analysis (LCA) of everyday items, PG_00072984						
Field of study	Technical Physics						
Date of commencement of studies	February 2026		Academic year of realisation of subject		2026/2027		
Education level	second-cycle studies		Subject group				
Mode of study	Full-time studies		Mode of delivery		e-learning		
Year of study	1		Language of instruction		Polish		
Semester of study	2		ECTS credits		2.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Department of Polymer Technology -> Faculty of Chemistry -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Paulina Parcheta-Szwindowska				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	0.0	0.0	0.0	30
	E-learning hours included: 30.0						
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		2.0		18.0	50
Subject objectives	The goal of this course is to prepare students to use life cycle assessment (LCA) to assess the impact of everyday objects on the environment and society, based on knowledge of sustainable development, responsible consumption, and the social aspects of product use, as well as to foster attitudes related to responsibility for the consequences of consumer and design decisions in the context of the environmental challenges of the modern world.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K7_U71] is able to apply knowledge from humanistic, social, economic or legal sciences in order to solve problems		Can use LCA results to evaluate and compare products.		[SU2] Assessment of ability to analyse information		
	[K7_K71] is able to explain the need to apply knowledge from humanistic, social, economic or legal sciences in order to function in a social environment		He is ready to promote responsible consumer and design practices.		[SK4] Assessment of communication skills, including language correctness		
	[K7_W71] has general knowledge in humanistic, social, economic or legal sciences, including their fundamentals and applications		The student knows and understands the social, economic, and environmental factors related to the product life cycle and the role of LCA analysis.		[SW3] Assessment of knowledge contained in written work and projects		

Subject contents	Course content – lecture		
	1. Introduction to LCA.		
	2. Sustainable development and responsible consumption.		
	3. Stages of the product life cycle.		
	4. The environmental footprint of everyday products.		
	5. Social aspects of LCA.		
	6. Circular economy.		
	7. Analysis of selected products.		
	8. Interpreting results and decision-making.		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Reflection (short note)	50.0%	100.0%
Recommended reading	Basic literature	ISO 14040; ISO 14044; M. Z. Hauschild, R. K. Rosenbaum, S. I. Olsen, Life Cycle Assessment, Theory and Practice, Springer, 2018.	
	Supplementary literature	Materials from UNEP and the European Commission, as well as articles on sustainable consumption.	
	eResources addresses		
Example issues/ example questions/ tasks being completed	Comparison of the environmental impact of PET bottles and glass bottles; life cycle analysis of a cell phone; LCA using AI tools		
Practical activities within the subject	Not applicable		

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