



Subject card

Subject name and code	, PG_00069238						
Field of study	Projektowanie zrównoważone						
Date of commencement of studies	October 2022		Academic year of realisation of subject		2025/2026		
Education level	first-cycle studies		Subject group				
Mode of study	Full-time studies		Mode of delivery		at the university		
Year of study	4		Language of instruction		Polish		
Semester of study	7		ECTS credits		3.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Department of Building Engineering -> Faculty of Civil and Environmental Engineering -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Patryk Deniziak				
	Teachers		dr inż. Wojciech Migda				
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	15.0	30.0	0.0	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		1.0		14.0	75
Subject objectives	The aim of the course is to familiarise students with the principles of designing buildings in accordance with the concept of sustainable development, encompassing a balance between environmental, economic and social aspects throughout the entire life cycle of a building.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K6_K01] Is aware of the key aspects of professional, ethical and social responsibility related to management, business operation, decision making and opinion formulation in civil engineering.		the student is able to consciously assess the aspects of professional, ethical and social responsibility		[SK3] Ocena umiejętności organizacji pracy		
	[K6_U07] Design and build engineering structures in a sustainable manner, with care for the natural environment and a minimum carbon footprint		student umie oceni wpływ projektowanej konstrukcji na środowisko przyrodnicze, umie oszacować wygenerowany ślad węglowy		[SU1] Ocena realizacji zadania [SU2] Ocena umiejętności analizy informacji		
	[K6_U06] Conduct engineering activities in civil engineering subject area, using and applying practical knowledge and understanding of materials, equipment and tools, processes and technologies.		the student is able to use the acquired knowledge in a practical way to create a sustainable construction project		[SU3] Ocena umiejętności wykorzystania wiedzy uzyskanej w ramach przedmiotu [SU4] Ocena umiejętności korzystania z metod i narzędzi		
	[K6_W07] Understand the investment's impact on the environment and the interrelationships and dependencies between the building structure and the natural environment		the student is able to independently determine the impact of the designed structure on the environment		[SW1] Ocena wiedzy faktograficznej		
	[K6_W06] Demonstrates practical knowledge and understanding of materials, devices and tools, processes and technologies in the field of civil engineering (and their limitations).		the student is able to select construction materials taking into account environmental, economic and social aspects		[SW1] Ocena wiedzy faktograficznej		

Subject contents	Course content – lecture		
	Introduction to Sustainable Construction Definitions and Sustainability Goals in Construction. European Union Policy and Strategies for Sustainable Construction. Life Cycle Assessment (LCA). Environmentally Friendly Materials and Technologies. Selection of Materials with a Low Carbon Footprint and Recyclability. Use of Local and Renewable Materials. Modern Technologies for Reducing Energy and Resource Consumption. Energy Efficiency and Energy Efficiency in Buildings. Designing Building Envelopes with Low Thermal Transmission Coefficients. Ventilation, Heating, and Cooling Systems in the Context of Energy Efficiency. Passive and Zero Energy Buildings (nZEB). Environmental Assessment and Certification of Buildings. Certification Systems: BREEAM, LEED, DGNB, WELL. Sustainable Building Assessment Criteria. Social and Economic Aspects of Sustainable Construction. User Comfort, Health, and Indoor Environmental Quality. Life Cycle Costs (LCC). Sustainable Urban Planning and Urban Infrastructure.		
	Course content – exercises Based on the model created during laboratory classes, compile a list of the materials used and estimate the generated carbon footprint. Course content – laboratory Create a 3D model of the structure. Apply loads: self-weight, snow, wind, and live load from photovoltaic panels. Generate load combinations for serviceability limits and ultimate limit state. Dimension the structure according to EC principles.		
Prerequisites and co-requisites	The student knows the basic principles of designing building structures in accordance with the principles of European standards.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
		60.0%	20.0%
		60.0%	20.0%
		60.0%	60.0%
Recommended reading	Basic literature	Budownictwo zrównoważone z elementami certyfikacji energetyczne. Błaszczyński Tomasz Ks. Barbara Dyzman Bogumił	
	Supplementary literature	Ekologia w budownictwie, Leonard Runkiewicz, Tomasz Błaszczyński	
	eResources addresses		
Example issues/ example questions/ tasks being completed			
Practical activities within the subject	Not applicable		

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