



Subject card

Subject name and code	Building physics, PG_00061548						
Field of study	Architecture						
Date of commencement of studies	October 2024		Academic year of realisation of subject		2026/2027		
Education level	first-cycle studies		Subject group		Obligatory subject group in the field of study Subject group related to scientific research in the field of study		
Mode of study	Full-time studies		Mode of delivery		at the university		
Year of study	3		Language of instruction		English		
Semester of study	5		ECTS credits		2.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Department of Technical Fundamentals of Architectural Design -> Faculty of Architecture -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor						
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	5.0	25.0	0.0	0.0	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		4.0		16.0	50
Subject objectives	The student recognizes the basic physical processes in buildings and the relationship between the building and the environment.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K6_U04] is able to use analytical methods to formulate and solve project tasks		is able to use analytical methods to formulate and solve design tasks in the field of building physics		[SU2] Assessment of ability to analyse information [SU1] Assessment of task fulfilment		
	[K6_W01] knows and understands construction problems, building and engineering issues related to building design; principles, solutions, constructions and building materials used in simple engineering tasks in the field of architectural and urban design		knows and understands the issues of building physics, including key issues in architectural design; understands physical phenomena occurring in buildings and between the building and the environment, including issues of heat and moisture, and knows the principles of design that will reduce energy consumption of the building and enable a proper microclimate in the building. The student has knowledge of the mechanism of sound and vibration transmission in buildings and noise propagation in open space, and identifies the parameters and technical information relating to acoustical characteristics of building materials and acoustical requirements of buildings contained in the standards and professional literature.		[SW2] Assessment of knowledge contained in presentation [SW1] Assessment of factual knowledge		

Subject contents	Course content – lecture		
	1. Architecture and climate. Energy quality. Energy: introduction		
	2. Physical phenomena in buildings: basics of heat transfer theory		
	3. Inhomogeneous layers and thermal bridges		
	4. Humidity and moisture protection		
	5. Energy performance. Requirements. Certification		
	Course content – exercises		
	Tutorials:		
	1. Relationship between the building and the environment - various aspects		
	2. Thermal and moisture properties of building elements		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Presentation	100.0%	20.0%
	Test	51.0%	30.0%
	Calculation task	100.0%	50.0%
Recommended reading	Basic literature	Kaliszuk-Wietecha A.: Budownictwo zrównoważone. Wybrane zagadnienia z fizyki budowli, 2017	
		Geryło R.: Nowoczesny standard energetyczny budynków, 2015	
	Supplementary literature	Trogal K., Bauman I., Lawrence R., Petrescu D. (ed.): Architecture and Resilience. Interdisciplinary Dialogues, 2019	
		La Roche P.: Carbon-Neutral Architectural Design, 2017	
		Naboni E., Havinga L. (ed.): Regenerative Design in Digital Practice. A Handbook for the Built Environment, 2019	
		Eames M. (ed.): Retrofitting Cities for Tomorrows World, 2018	
		Lehmann S.: Urban Regeneration. A Manifesto for transforming UK Cities in the Age of Climate Change, 2019	
		Delgado Ramos G. C.: Climate Change-Sensitive Cities: Building Capacities for Urban Resilience, Sustainability & Equity, 2017	
	eResources addresses		
Example issues/ example questions/ tasks being completed	Calculate hygrothermal properties of building elements (different types)		
Practical activities within the subject	Not applicable		

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