GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Modern Technologies in Construction, PG_00067338		
Field of study	Architecture		
Date of commencement of studies	October 2026	Academic year of realisation of subject	2026/2027
Education level	second-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	blended-learning
Year of study	1	Language of instruction	English
Semester of study	1	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	dr inż. arch. Joanna Kabrońska	
	Teachers	dr inż. arch. Joanna Kabrońska	

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	15.0	15.0	0.0	0.0	0.0	30
E-learning hours included: 15.0						

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	3.0	17.0	50

Subject objectives

Acquiring the ability to apply innovative technologies in the design of the built environment

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K7_W01] knows and understands construction, building and engineering issues related to building design; principles, solutions, constructions and building materials used in performing complex engineering tasks in the field of architectural and urban design	knows and understands advanced issues related to construction, building technology and installations, structure and building physics, covering key, complex issues in architectural, urban, and planning design; knows innovative building materials and technologies and has knowledge about their application in architectural design process	[SW2] Assessment of knowledge contained in presentation
[K7_W02] knows and understands the rules of gathering information and their interpretation as a part of project concept preparation; detailed issues related to architecture and urban planning in the field of complex design problems solving	The student knows and understands the rules of searching and selecting information about emerging technologies and innovative building materials during the development of the design concept	[SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects

<table>
<tr><td>Subject contents</td><td>Course content – lecture
New technologies in architecture: introduction, concept and role of technology. Social aspects of technological change: Actor-Network Theory

Innovative materials and technologies and their applications

Smartmaterials: nanomaterials, phase-change materials, high-performance materials

Building materials and technologies in an environmental aspect. Energy neutral architecture

Intelligent components and systems in architecture, intelligent environments. Scenarios for the future

Course content – exercises
New technologies in architecture: introduction, concept and role of technology. Social aspects of technological change: Actor-Network Theory

Innovative materials and technologies and their applications

Smartmaterials: nanomaterials, phase-change materials, high-performance materials

Building materials and technologies in an environmental aspect. Energy neutral architecture

Intelligent components and systems in architecture, intelligent environments. Scenarios for the future</td></tr>
<tr><td>Prerequisites and co-requisites</td><td></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>completion of the tasks</td><td>100.0%</td><td>100.0%</td></tr></table></td></tr>
<tr><td>Recommended reading</td><td>Basic literature</td><td>Aksamija A.: Integrating Innovation in Architecture: Design, Methods and Technology for Progressive Practice and Research, 2016

Kretzer M.: Information Materials: Smart Materials for Adaptive Architecture, 2017

Wysocki M., Kabrońska J.: Nowe technologie w architekturze. Społeczna rola technologii [in:] Wybrane problemy przebudowy obiektów budowlanych, ed. Janowicz R., Przewłócki J., pp. 127-136, 2016</td></tr>
</table>

	Supplementary literature	Beauregard R.: We Blame the Building! The Architecture of Distributed Responsibility. International Journal of Urban and Regional Research, 39 (3), pp. 53349, 2015 De Munck B.: Re-assembling Actor-Network Theory and urban history. Urban History, 44(1), pp. 111-122, 2017. doi:10.1017/S0963926816000298 Information Resources Management Association: Smart Cities and Smart Spaces: Concepts, Methodologies, Tools, and Applications, 2019 Kabrońska J., Sztafrowski M.: Innowacyjne technologie w architekturze jako narzędzie polepszenia jakości energetycznej budynków [in:] Wybrane problemy przebudowy obiektów budowlanych, ed. Janowicz R., Przewłócki J., pp.127-136, 2016 Kabrońska J., Wysocki M.: The adaptability of architectural objects in contemporary design [in:] Object-Architecture-Environment : the problems of sustainable design. Vol. 2, Architecture, ed. Idem R., Górka A., pp. 31-45, 2018 Latour B., Yaneva A.: Give Me a Gun and I Will Make All Buildings Move: An ANTs View of Architecture, 2008 Wiethoff A., Hussmann H.: Media Architecture: Using Information and Media As Construction Material, 2017
	eResources addresses	
Example issues/ example questions/ tasks being completed	Multimedia presentation concerning the use of the innovative technologies in architectural design	
Practical activites within the subject	Not applicable	

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