Annex No. 9
to the Rector's Decision No. 35/19
as amended by Decision No. 12/22

COURSE SPECIFICATION

Course code	full-time:	**B1S-TiOB-609**
	part-time:	**B1N-TiOB-709**
Course title in Polish	**Nowoczesne Materiały Budowlane**	
Course title in English	**Modern Building Materials**	
Valid from academic year	**2023/2024**	

CURRICULAR ALIGNMENT

Programme	**CIVIL ENGINEERING**
Level	**first-cycle**
Programme profile	**academic**
Mode of attendance	**full-time; part-time**
Specialism	**Construction Technology and Project Management**
Academic unit responsible for the course	**Department of Construction Technology and Management**
Course coordinator	**dr inż. Edyta Spychał**
Approved by	**prof. dr hab. inż. Grzegorz Świt**

COURSE DESCRIPTION

Teaching block		**specialism specific**
Course status		**required**
Language of instruction		**Polish**
Semester of delivery	full-time	**semester VI**
	part-time	**semester VII**
Prerequisites		**Building Materials, General Construction**
Exam (YES/NO)		**NO**
ECTS		**2**

Mode of teaching		**lecture**	**class**	**lab**	**project**	**other**
Number of hours per semester	full-time:	**15**		**15**		
	part-time:	**10**		**10**		

LEARNING OUTCOMES

Category	Code	Learning outcomes	Corresponding programme outcome code
Knowledge	W01	Students describe cutting-edge developments in the field of building materials, their properties, production methods, application, testing, taking into account the requirements set out in relevant standards; know their impact on the environment and people; classify modern building materials.	B1_W18
Skills	U01	Students are able to carry out laboratory tests in accordance with current instructions and standards; determine the properties, suitability and quality assessment of the building material.	B1_U23
	U02	Students can compare the properties of tested materials and make optimal choices, in accordance with the applicable requirements and standards.	B1_U24
	U3	Students are able to obtain information about modern material solutions from available literature sources, databases, also in a foreign language; demonstrate self-education skills; can prepare a documented report of completed research.	B1_U29
Competence	K01	Students work independently and cooperate in a group on the required task or a research problem.	B1_K01
	K02	Students understand the importance of their responsibility for the correctness and reliability of the presented results of their research.	B1_K02
	K03	Students interpret the obtained results and formulate conclusions from the conducted experiments.	B1_K04
	K04	Students understand the importance of laboratory specific health and safety rules they should follow.	B1_K05

COURSE CONTENT

Teaching mode*	Topics covered
lecture	Innovative solutions in the field of applied chemical additives and admixtures in building mortar technology.
	Selected issues in the field of masonry mortars, plastering mortars, and adhesive grouts.
	Innovative insulation.
	Industrial floors.
	Geopolymers.
	Use of waste materials in materials engineering.
	Low-emission building materials.
	Transparent concrete. Smart concrete.
lab	Health and Safety Training.
	Testing the properties of building mortars modified with selected chemical admixtures/additives. Testing building materials containing lightweight aggregates in their composition.
	Evaluation of the quality of water and moisture penetration protection materials, including waterproofing materials.
	Testing ceramic tiles and tile adhesives.

METHODS OF LEARNING OUTCOMES VERIFICATION

Learning outcome	Learning outcome verification methods					
	Oral exam	Written exam	Test	Project	Report	Other
W01			X	X		
U01				X		
U02				X		
U03				X		
K01				X		
K02				X		
K03				X		
K04						X

ASSESSMENT

Teaching mode*	Assessment type	Criteria
lecture	mark-based	*Obtaining at least 50% of the points from the test.*
laboratory	mark-based	*Obtaining at least 50% of the points from the test, completing all exercises, submitting and passing all reports.*

STUDENT WORKLOAD

ECTS weighting												
	Activities	Student workload										
		full-time					part-time					
1.	Scheduled contact hours	W	C	L	P	S	W	C	L	P	S	h
		15		15			10		10			
2.	Other (office hours, exams)	2		2			2		2			h
3.	**Total number of contact hours**	**34**					**24**					h
4.	**Number of ECTS credits for contact hours**	**1,4**					**1**					ECTS
5.	**Independent study hours**	**16**					**26**					h
6.	**Number of ECTS credits for independent study**	**0,6**					**1**					ECTS
7.	**Practical hours**	**25**					**25**					h
8.	**Number of ECTS credits for practical hours**	**1**					**1**					ECTS
9.	**Total workload**	**50**					**50**					h
10.	**ECTS credits for the course** *1 ECTS credit =25 student learning hours*	**2**										

READING LIST

1. Praca zbiorowa, redakcja naukowa pod kierunkiem Jana Małolepszego, Podstawy Technologii Materiałów Budowlanych i Metody Badań, Wydawnictwo AGH, Kraków 2022.
2. Hajduk P., Projektowanie i ocena techniczna betonowych podłóg przemysłowych, Wydawnictwo Naukowe PWN, Warszawa, 2018

3. Łukowski P., Modyfikacja Materiałowa Betonu, Stowarzyszenie Producentów Cementu, Kraków, 2016
4. Gantner E., Chojczak W., Materiały Budowlane. Spoiwa, Kruszywa, Zaprawy. Ćwiczenia laboratoryjne, Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa, 2013