



COURSE CARD

1. Basic information

Course name in English:	Recent research trends in architecture and urban planning	
Course name in Polish:	Najnowsze kierunki badań w architekturze i urbanistyce	
Number of hours:	30	
Type of course:	Recent research trends in discipline	
Form of course:	lecture	
Code of course:	W01ARU-SD0009W / AUQ100299W	
Course leader:	Prof. Marzanna Jagiełło	
Faculty of the course leader:	W1 Faculty of Architecture	
Email address of the course leader:	Marzanna.jagiello@pwr.edu.pl	
Scientific discipline(s) assigned to the course (doctoral students representing the marked disciplines can participate in the course):	Architecture and urban planning	<input checked="" type="checkbox"/>
	Automation, electronic, electrical engineering and space technologies	<input type="checkbox"/>
	Information and communication technology	<input type="checkbox"/>
	Biomedical engineering	<input type="checkbox"/>
	Chemical engineering	<input type="checkbox"/>
	Civil engineering, geodesy and transport	<input type="checkbox"/>
	Materials engineering	<input type="checkbox"/>
	Mechanical engineering	<input type="checkbox"/>
	Environmental engineering, mining, and energy	<input type="checkbox"/>
	Mathematics	<input type="checkbox"/>
	Chemical sciences	<input type="checkbox"/>
	Physical sciences	<input type="checkbox"/>
Management and quality studies	<input type="checkbox"/>	

2. Objectives

Introduce doctoral students to the latest research directions in the discipline of architecture and urban planning

3. Content

Detailed information about the course content, including topics and form of classes.

No.	Topic	Number of hours	Form of classes
1	How can you identify the most topical research topics based on your understanding of the European Commission's Framework Programs? Prof. B. Widera	2	lecture
2	Selected directions of scientific research in urban and spatial planning, prof. T. Ossowicz	2	lecture



3	Introduction to research on bioclimatic architecture, prof. B. Widera	2	lecture
4	Pro-social management of architectural heritage. Eye-tracking research, dr M. Rusnak	2	lecture
5	Research questions and the scope and methods of research - from the city scale to a case study of a single apartment, prof. M. Baborska	2	lecture
6	Social engineering methods in research on the functioning of buildings, prof. M. Baborska	2	lecture
7	Quantitative research in architecture, on the example of daylight simulation studies, prof. Brzezicki	2	lecture
8	Qualitative research in architecture, morphological studies on the example of studying trends in the architecture of transparent facades, prof. Brzezicki	2	lecture
9	Shaping double curved architectural covers, prof. R. Tarczewski	2	lecture
10	Urban and architectural heritage of socialism. Test and evaluation criteria, prof. A. Tomaszewicz, dr J. Majczyk	2	lecture
11	Climate threats, sustainable development and recycling of architectural heritage, prof. Łużyńska	2	lecture
12	The online-offline continuum and its impact on urban land use, prof. Ł. Damurski	2	lecture
13	Spatial decision making as a social learning process, prof. Ł. Damurski	2	lecture
14	Contemporary directions and methods of urban landscape research, prof. M. Jagiełło	2	lecture
15	The engineering experiment, POE, lab building, computer testing and processing (modelling, AR and VR), prof. Joanna Jabłońska	2	lecture

4. Prerequisites

List of prerequisites relating to knowledge, skills and other competences for course participants.

No prerequisites

5. Learning outcomes

List of learning outcomes at level 8 of the Polish Qualifications Framework assigned to the course (mark the learning outcomes in the last column).

Symbol	Learning outcome	
	<i>KNOWLEDGE. Doctoral student knows and understands:</i>	
SzD_W3	the main trends in the development of the scientific or artistic disciplines covered in the curricula;	<input checked="" type="checkbox"/>
SzD_W4	research methodology;	<input type="checkbox"/>



SzD_W5	the rules for the dissemination of scientific results, including in open access mode;	<input type="checkbox"/>
SzD_W6	the fundamental dilemmas of modern civilization;	<input checked="" type="checkbox"/>
SzD_W7	the legal and ethical conditions of scientific activity;	<input type="checkbox"/>
SzD_W8	the economic and other relevant conditions of scientific activity;	<input type="checkbox"/>
SzD_W9	basic principles of knowledge transfer to the economic and social spheres and commercialisation of results of scientific activity and know-how related to these results.	<input type="checkbox"/>
<i>SKILLS. Doctoral student is able to:</i>		
SzD_U2	use knowledge from different fields of science or art to creatively identify, formulate and innovatively solve complex problems or perform research tasks, in particular: - define the purpose and subject of scientific research, formulate a research hypothesis, - develop research methods, techniques and tools, and use them creatively, - draw conclusions on the basis of scientific research; critically analyse and evaluate the results of scientific research, expertise and other creative work and their contribution to knowledge development; transfer the results of scientific activities to the economic and social spheres;	<input type="checkbox"/>
SzD_U3	communicate on specialised topics to the extent that they enable an active participation in the international scientific community;	<input type="checkbox"/>
SzD_U4	disseminate research results, including in popular forms;	<input type="checkbox"/>
SzD_U5	initiate debates and participate in a scientific discourse;	<input type="checkbox"/>
SzD_U6	be able to speak a foreign language at B2 level of the Common European Framework of Reference for Languages to a level that enables them to participate in the international scientific and professional environment;	<input type="checkbox"/>
SzD_U7	plan and implement an individual or collective research or creative activity, including in an international environment;	<input type="checkbox"/>
SzD_U8	independently plan and act for one's own development and inspire and organize the development of others;	<input type="checkbox"/>
SzD_U9	plan classes or groups of classes and implement them using modern methods and tools.	<input type="checkbox"/>
<i>SOCIAL COMPETENCES. Doctoral student is ready to:</i>		
SzD_K3	fulfilling the social obligations of researchers and creators, initiate public interest activities, thinking and acting in an entrepreneurial way;	<input type="checkbox"/>
SzD_K4	maintaining and developing the ethos of research and creative environments, including: - carrying out scientific activities in an independent manner, - respecting the principle of public ownership of research results, taking into account the principles of intellectual property protection.	<input type="checkbox"/>

6. Evaluation

Short description of the method(s) used to evaluate the learning outcomes assigned to the course, e.g., exam, test, report, presentation, etc.

Problem discussion, essay



7. Teaching methods

Short description of the teaching methods used during the course, e.g., multimedia presentation, discussion, literature studies, developing written documents, own work, etc.

lecture, multimedia presentation, problem discussion

8. Literature

List of primary and secondary literature used to prepare the course and including additional knowledge for participants, e.g., books, textbooks, research papers, standards, web pages, etc.

PRIMARY LITERATURE:

- [1] Brzezicki M., The architectural design of light-permeable facades – a summary of recent trends and observations, *Technical Transactions* 2019 | Vol. 116, iss. 12 | 5--30, DOI: 10.4467/2353737XCT.19.120.11445
- [2] Brzezicki M., An Evaluation of Annual Luminous Exposure from Daylight in a Museum Room with a Translucent Ceiling, *Buildings* 2021, 11(5), 193 <https://doi.org/10.3390/buildings11050193>
- [3] Baborska-Narozny, M., Szulgowska-Zgrzywa, M., Mokrzejka, M., Chmielewska, A., Fidorow-Kaprawy, N., Stefanowicz, E., ... Laska, M. (2020). Climate justice: air quality and transitions from solid fuel heating. *Buildings and Cities*, 1(1), 120–140. DOI: <http://doi.org/10.5334/bc.23>
- [4] Baborska-Narozny, M. (2017). Building performance evaluation—Understanding the benefits and risks for the stakeholders involved. Lessons for Poland based on the UK experience. *Architectus*, 1(49), 47–61. DOI: <https://doi.org/10.5277/arc170104>
- [5] Hart, S., *Ecoarchitecture: The Work of Ken Yeang*, John Wiley & Sons Inc, 2011, ISBN: 9780470721407
- [6] Almusaed A., *Biophilic and Bioclimatic Architecture: Analytical Therapy for the Next Generation of Passive Sustainable Architecture*, Springer Science & Business Media, 2010
- [7] Košir M., *Climate Adaptability of Buildings: Bioclimatic Design in the Light of Climate Change* Springer, 2019
- [8] https://ec.europa.eu/info/research-and-innovation/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe_en
- [9] <https://cordis.europa.eu/>
- [10] Adriaenssens S., Block P., Veenendaal D. and Williams Ch., *Shell Structures for Architecture: Form Finding and Optimization*. Routledge, 2014.
- [11] Burry M. and Burry J., *The New Mathematics of Architecture*. Thames & Hudson, 2010.
- [12] Pottmann H., Asperl A., Hofer M., and Kilian A., *Architectural Geometry*. Daril Bentley (ed). Bentley Institute Press 2007.
- [13] Jiang C., Tang C., Tomiči M., Wallner J., Pottmann H., *Interactive Modeling of Architectural Freeform Structures: Combining Geometry with Fabrication and Statics*. In: Block [16] P., Knippers J., Mitra N., Wang W. (eds) *Advances in Architectural Geometry* 2014. Springer, 2015. https://doi.org/10.1007/978-3-319-11418-7_7
- [14] Block Ph. and Ochsendorf J., Thrust Network Analysis: A New Methodology for Three-Dimensional Equilibrium. *Journal of the International Association for Shell and Spatial Structures* Vol. 48 (2007) No. 3 December n. 155, pp. 167–73.



- [15] Byrne J., Matthews T., *Sustainable re-use and recycling work for heritage buildings and places too*, The Conversation (2017)
, <https://theconversation.com/sustainable-re-use-and-recycling-work-for-heritage-buildings-and-places-too-83975>
- [16] Seekamp E., Jo E., *Resilience and transformation of heritage sites to accommodate for loss and learning in a changing climate*, Climatic Change (2020) 162:41–55 ,
(pdf) <https://doi.org/10.1007/s10584-020-02812-4>
- [17] Wilkinson S., Remøy H., *Heritage building preservation vs sustainability? Conflict isn't inevitable*, The Conversation
(2017) <https://theconversation.com/heritage-building-preservation-vs-sustainability-conflict-isnt-inevitable-83973>
- [18] Batty M. (2014). *City 1.0, City 2.0, City n.0, ..., City t.* 'Environment and Planning B' No 1(41), p. 1–2.
- [19] Castells M. (1998). *The Rise of the Network Society*, Malden, Oxford: Wiley-Blackwell.
- [20] Damurski Ł., Pluta J., Ładysz J., Mayer-Wydra M. (2018). *Online or offline services for urban neighbourhoods? Conceptualisation of research problems.* 'International Journal of E-Planning Research' Volume 8, Issue 1, January-March 2019, p. 50-67. DOI: 10.4018/IJEPR.2019010104
- [21] Damurski Ł. (2015). *From formal to semi-formal and informal communication in urban planning: insights from Polish municipalities.* European Planning Studies. 2015, vol. 23, nr 8, p. 1568-1587. [25] Evans, J., Vacha, T., Watson, K and Kok, H. (2021) *How Cities Learn: From Experimentation to Transformation.* Urban Planning. Accepted 27th October 2020.
- [22] Lang Jon, 2006, *Urban Design: A typology of procedures and products*, Elsevier, Architectural Press, Amsterdam, Boston, Heidelberg, London, New York, Oxford, Paris, San Diego, San Francisco, Singapore, Sydney, Tokyo.
- [23] Corner, J., *Recovering Landscape: Essays in Contemporary Landscape Architecture*, New York, Princeton Architectural Press, 1999.
- [24] Mostafavi, Mohsen, Cirola Najle i Architectural Association, *Landscape Urbanism: A Manual for the Machinic Landscape*, Londyn: Architectural Association, 2003.
- [25] Moran, E.F., *People And Nature: An Introduction To Human Ecological Relations*, Malden, MA: Blackwell Publishing Ltd. 2011.
- [26] Colletti M., *Digital Poetics: An Open Theory of Design-Research in Architecture*, ed. Routledge 2013
- [27] *Design Research in Architecture: An Overview*, ed. Fraser Murray Ashgate Publishing, Farnham, UK 2013

SECONDARY LITERATURE:

- [1] Gzell Sławomir, *Urbanistyka XXI wieku*, Wydawnictwo Naukowe PWN, Warszawa 2020.
- [2] Kowalewski Adam, Markowski Tadeusz, Śleszyński Przemysław (red.), *Studia nad chaosem przestrzennym*, Tom I-III, Studia, Tom CLXXXII, Polski Komitet Przestrzennego Zagospodarowania Kraju PAN, Warszawa 2018.
- [3] Ossowicz Tomasz, *Metoda ustalania kolejności przedsięwzięć polityki przestrzennej miasta wielkiego*, Oficyna Wydawnicza Politechniki Wrocławskiej, Wrocław 2003.
- [4] Baborska-Narozny, M. (red.) *Węglem i nie węglem. Ogrzewanie kamienic: perspektywa mieszkańców i scenariusze zmian. Rzeczywiste koszty, zużycie energii i warunki korzystania z różnych systemów ogrzewania.* Oficyna Wydawnicza Politechniki Wrocławskiej, Wrocław.
[doi:https://doi.org/10.37190/DiverCITY4_WNW](https://doi.org/10.37190/DiverCITY4_WNW)



[5] Baborska-Narożny M., Szulgowska-Zgrzywa M., Chmielewska A., Fidorów-Kaprawy N., Laska M., Stefanowicz E., Piechurski K. (2018) Ciepło w domu, gdy zimno na dworze (eng. *Warm inside when cold outside*). The research report, available at:

https://www.funduszeuropejskie.gov.pl/media/95398/4_cieplo-zimno-raport.pdf

[6] Baborska-Narożny M., Szulgowska-Zgrzywa M., Piechurski K., Stefanowicz E., Fidorów-Kaprawy N., Laska M., Machyńska A., Chmielewska A., Wójcik F. (2019) Źródła ciepła na paliwo stałe w budynkach mieszkalnych we Wrocławiu. The research report, available at:

<https://bip.um.wroc.pl/arttykul/643/43316/raport-z-badan-zrodla-ciepła-na-paliwo-stale-w-budynkach-mieszkalnych-we-wrocławiu> [Accessed 20/05/2021]

[7] Sławińska J., Widera B., Nurty w architekturze współczesnej – kłopoty z wyodrębnieniem, *Architectus*, 1-2/2001, 89–95.

[8] Niezabitowska E.D. Danuta, *Metody i techniki badawcze w architekturze*, Wydawnictwo Politechniki Śląskiej Gliwice

2014; http://delibra.bg.polsl.pl/Content/24334/BCPS_26334_2014_Metody-i-techniki-badawcze.pdf

9. Other remarks

Additional remarks, comments, (e.g., language of the course)