



## 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	Introduction to research on bioclimatic architecture, prof. B. Widera	2	lecture



3	Pro-social management of architectural heritage. Eye-tracking research, dr M. Rusnak	2	lecture
4	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
5	Social engineering methods in research on the functioning of buildings, prof. M. Baborska	2	lecture
6	Quantitative research in architecture, on the example of daylight simulation studies, prof. M. Jagiełło	2	lecture
7	Qualitative research in architecture, morphological studies on the example of studying trends in the architecture of transparent facades, prof. M. Jagiełło	2	lecture
8	Shaping double curved architectural covers, prof. R. Tarczewski	2	lecture
9	Urban and architectural heritage of socialism. Test and evaluation criteria, prof. A. Tomaszewicz, dr J. Majczyk	2	lecture
10	Climate threats, sustainable development and recycling of architectural heritage, prof. Łużyńska	2	lecture
11	Selected directions of scientific research in urban and spatial planning, prof. T. Ossowicz	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	The engineering experiment, POE, lab building, computer testing and processing (modelling, AR an VR), prof. Joanna Jabłońska	2	lecture
15	Contemporary directions and methods of urban landscape research, prof. M. Jagiełło	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., Mokrzejcka, 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](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](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](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]

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[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](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)*