

COURSE OFFERED IN THE DOCTORAL SCHOOL

Code of the course	4606-ES-000000A-0249	Name of the course	Polish	Rozwój zrównoważony w architekturze i urbanistyce				
			English	Sustainable development in architecture and urban planning				
Type of the course	Specialized							
Course coordinator	Prof. dr hab. inż. arch. Elżbieta Ryńska							
Implementing unit	FA WUT	Scientific discipline / disciplines*	Architecture and Town Planning					
Level of education	Doctoral	Semester	summer					
Language of the course	English							
Type of assessment:	pass	Number of hours in a semester	9x2+4x3=30	ECTS credits	2			
Minimum number of participants	12	Maximum number of participants	50	Available for students (BSc, MSc)	Yes/No			
Type of classes	Lecture	Auditory classes	Project classes	Laboratory	Seminar			
Number of hours	in a week	2 or 3						
	in a semester	30						

* does not apply to the Researcher's Workshop

1. Prerequisites

There are no initial requirements, level of knowledge presented on the Engineering Master level is sufficient

2. Course objectives

The aim of the lectures is a presentation of a curricula allowing graduates from the Faculty of Architecture and graduates from other engineering disciplines from the urbanization areas to achieve a deeper understanding concerning environmentally friendly solutions discussed on the canvas of European environment. Curricula has been formulated to be applicable in the professional life of architects and urban planners working in interdisciplinary design teams. The assumption is that management of natural environment resources is not only a legal requirement, but also part of the professional ethics.

The technical theme leads towards broadening of the knowledge and competences concerning environmentally friendly and energy efficient technologies.

3. Course content (separate for each type of classes)

Lecture

1. Introduction and Beginnings of sustainable approach
2. The Green Deal, Health and safety for human comfort
3. Mobility – new concepts
4. Resource efficiency and the circular economy
5. Water as an integral part of circular solutions
6. Urban Farming in Sustainable City Development
7. Transformation of urbanized areas – the regenerative model
8. Circular approach to design - generalities
9. Taxonomy in construction and real estate sectors
10. Circular city Amsterdam and other cities
11. Overview of reported national policies and measures on climate change mitigation in Europe
12. Green themes in Poland
13. ESG reporting standards

15. Conservation and restoration
Laboratory

4. Learning outcomes			
	Learning outcomes description	Reference to the learning outcomes of the WUT DS	Learning outcomes verification methods*
Knowledge			
W01	the fundamental dilemmas of contemporary civilization	SD_W1	Evaluation of final report
W02	to the extent that it is possible to revise the existing paradigms - the world's achievements, including theoretical grounds, general issues and selected specific issues, relevant to the scientific discipline represented, including the latest scientific developments in the field of research	SD_W2	Evaluation of final report
W03	the main development trends of the scientific discipline implemented and the related scientific methodologies	SD_W3	Evaluation of final report
Skills			
S01	use knowledge from different fields to identify, formulate and give innovative solutions to complex problems or perform research-related tasks, in particular: <ul style="list-style-type: none"> • define the purpose and subject of research, formulate a research hypothesis; • develop and use research methods, techniques and tools; • correctly infer from the results of the tests 	SD_U1	Evaluation of final report
S02	carry out critical analysis and evaluation of the results of scientific research, expert activities and other creative activities and their contribution to the development of knowledge, in particular assessing the usefulness and feasibility of the results of theoretical work in practice	SD_U2	Evaluation of final report
S03	communicate on specific topics, particularly to the scientific discipline represented, to the extent that it is possible to participate actively in national and international scientific environment, including international consortia of research bodies	SD_U4	Evaluation of final report
Social competences			
SC01	recognition of the importance of knowledge and scientific achievements in addressing cognitive and practical problems	SD_K2	Evaluation of final report

*Allowed learning outcomes verification methods: exam; oral exam; written test; oral test; project evaluation; report evaluation; presentation evaluation; active participation during classes; homework; tests

5. Assessment criteria

Attending at least 80% classes, activity, thematic own study constituting an extension of one of the discussed lectures (approx. 10 pages) submitted during the last class

6. Literature

Basic literature:

[1] White Paper (2018) Circular Economy in Cities. Evolving the model for a sustainable urban future, World Economic Forum REF 260218 — 00034436

[2] Urban innovation for liveable cities. A holistic approach to sustainable city solutions. Think Denmark. White papers for a green transition. State of Green 2016 www.stateofgreen.com

[3] Rynska, E., Lewicka, M. (2019). Closed circulation loops in historic buildings. Cultural diagnosis as one of the major factors in a contemporary designer's workshop. *Urban Development Issues. Scientific Quarterly of the Institute of Urban and Regional Development* vol. 61, March 2019

[4] Mekonnen, M., Hoekstra, A. (2011). National water footprint accounts: The green, blue and grey water footprint of production and consumption. Institute for Water Education.

<https://research.utwente.nl/en/publications/national-water-footprint-accounts-the-green-blue-and-grey-water-f>

[5] Kozminska, U., Rynska, E. (2018). Materiały konstrukcyjne i budowlane spełniające zasady zrównoważonego rozwoju. In: Firlag S. eds., *Zrównoważone budynki biurowe*, PWN Editing House in cooperation with PLGBC, Warsaw 2018 ISBN: 978-83-01-19513-7

[6] Rynska E. (2025) Embedding Resilience in the Built Environment Using the EU Taxonomy. ISBN 9781032878898
Published February 14, 2025 by Routledge

Supplementary literature:

[[1] EU legislation on sustainable development

7. PhD student's workload necessary to achieve the learning outcomes**

No.	Description	Number of hours
1	Hours of scheduled instruction given by the academic teacher in the classroom	30
2	Hours of consultations with the academic teacher, exams, tests, etc.	10
3	Amount of time devoted to the preparation for classes, preparation of presentations, reports, projects, homework	0
4	Amount of time devoted to the preparation for exams, test, assessments	20
Total number of hours		60
ECTS credits		2

** 1 ECTS = 25-30 hours of the PhD students work (2 ECTS = 60 hours; 4 ECTS = 110 hours, etc.)