Course title:	Green Infrastructure Development
Course title in Polish:	Kształtowanie zielonej infrastruktury
Course for discipline:	Environmental Engineering, Mining and Energy

Semester:	5	**Status of course:**	faculty	**Language:**	english
Academic year:		**Catalog number:**			

Coordinator of course:	dr hab. inż. Renata Giedych, prof. SGGW
Lecturer od course:	dr hab. Agata Cieszewska, dr hab. inż. Renata Giedych, prof. SGGW, dr inż. Gabriela Maksymiuk
Executing unit:	Department of Landscape Architecture, Institute of Environmental Engineering
Ordering unit:	Doctoral School SGGW
Assumptions, goals and description of the course:	Assumptions: This course adopts a multidimensional approach to green infrastructure, integrating ecological, spatial, and technical perspectives. It emphasizes a critical examination of its theoretical foundations, development trends, and diverse interpretations within planning and environmental management. The course presents green infrastructure as a systemic approach that organizes the relationships between natural processes and human activities in the built environment. Goals: The course aims to deepen students' understanding of green infrastructure as a strategic response to urbanization pressures, climate change, and the need to enhance environmental quality. Students will explore the factors influencing successful implementation, as well as the role of public policies, regulations, and planning instruments in creating coherent natural systems. The course also highlights the potential of green infrastructure to align environmental initiatives with socio-economic development. Course Description: The course is analytical and problem-focused, drawing on in-depth literature review and critical analysis of selected case studies. It examines the functions, objectives, and guiding principles of green infrastructure, alongside the legal and managerial tools used to implement it. Particular emphasis is placed on practical application, including the institutional, planning, and organizational mechanisms that enable effective deployment across different spatial scales.
Didactic form, number of hours:	10 hours
Teaching methods:	Literature studies, case studies, PBL, brainstorming
Limit of people in the group:	15

Learning outcomes

KNOWLEDGE - the graduate knows and understands:	**SKILLS - the graduate is able to:**	**COMPETENCES - the graduate is ready to:**
To the extent enabling to revise the existing pradigms in the field/discipline - the world achievments, gathering theoretical background as well as general and selected detailed issues	Carry out critical assessment of the scientific research findings and expert activities and their contribution to the knowledge development in the field/discipline	Critically evaluate the achievments in the field/discipline represented
Major general development trends in the field/discipline		Recognise knowledge in solving cognitive and practical problems characteristic for the area of research (field/discipline) and in an interdisciplinary aspect
		Support the ethos of scientific circles and conduct independent research

The method of verification of learning outcomes:	K - written work S - multimedia presentation C - participation in discussions during class sessions
Form of documentation of achieved learning outcomes:	Electronic and analogue versions of written works and presentations
Elements and weights of the final grade:	Final evaluation: written work-40%; multimedia presentation-40%; discussion-20%
Place of the course:	Didactic room

Basic and supplementary literature

Basic literature:
1. Albro, S. L. 2019. Vacant to Vibrant. Creating successful green infrastructure network. Washington: IslandPress.
2. Benedict M.A., McMahon E. T. 2006: Green infrastrukture : linking landscapes and communities, Washington: IslandPress
3. Brears, R. C. 2018. Blue and Green Cities. London: Palgrave Macmillan UK
4. Firehock, Karen. 2015. Strategic green infrastructure planning: A multiscalar approach. Washington: IslandPress.
5. Grunewald, K., Junxiang Li, Gaodi Xie, i Lennart Kümper-Schlake, red. 2018. Towards Green Cities: Urban Biodiversity and Ecosystem Services in China and Germany. Cham: Springer International Publishing.
6. Koh, Jae Myong. 2018. Green Infrastructure Financing. Cham: Springer International Publishing.
7. Nakamura, F. red. 2022. Green Infrastructure and Climate Change Adaptation: Function, Implementation and Governance. Singapore: Springer Nature Singapore.
8. Pearlmutter, D., Calfapietra C, Roeland Samson, O'Brien, L., Krajter Ostoić, S., Sanesi, G., i Del Amo, R. A. red. 2017. The Urban Forest: Cultivating Green Infrastructure for People and the Environment. Cham: Springer International Publishing.
Supplementary literature:
1. Legutko-Kobus, P., Szulczewska, B., Gawryszewska, B., Długozima, A., Giedych, R., & Nowak, M. J. 2025. Barriers in the green infrastructure governance in small and medium-sized cities in Poland. Economics and Environment, 91, Article 4.
2. Giedych, R., Maksymiuk, G., & Cieszewska, A. 2024. Eco-Spatial Indices as an Effective Tool for Climate Change Adaptation in Residential Neighbourhoods—Comparative Study. Land, 13, Article 9.
3. Szulczewska B., Giedych R., Maksymiuk G. 2017. Can we face the challenge: how to implement a theoretical concept of green infrastructure into planning practice? Landscape Research, 42 (2): 176–194
4. Szulczewska B., Giedych R., Dobson S., Doygun H., Halounova L., Nurlu E., Pirowski A. 2014. Planning measures for ecosystem based adaptation capacity of cities: a comparative study. In: Dawson R.J., Wykmans A., Heinrich O., Kohler J., Dobson S., Feliu E. (eds.) Understanding Cities: Advances in integrated assessment of urban sustainability, Centre for Earth Systems Engeneering Research (CESER), New Castle: 110-130

Comments:	

Estimated number of hours of work of the doctoral student necessary to achieve the assumed learning outcomes:	25

Leraning outcomes reference to the second degree characteristics of the National Qualification Framework (level 8) covering doctoral competences:		
Symbol:	**Learning outcomes:**	**8 level NQF**
SD1_KW01	To the extent enabling to revise the existing pradigms in the field/discipline - the world achievments, gathering theoretical background as well as general and selected detailed issues	P8S_WG
SD1_KW02	Major general development trends in the field/discipline	P8S_WG
SD1_KU05	Carry out critical assessment of the scientific research findings and expert activities and their contribution to the knowledge development in the field/discipline	P8S_UW
SD1_KK01	Critically evaluate the achievments in the field/discipline represented	P8S_KK
SD1_KK03	Recognise knowledge in solving cognitive and practical problems characteristic for the area of research (field/discipline) and in an interdisciplinary aspect	P8S_KK
SD1_KK08	Support the ethos of scientific circles and conduct independent research	P8S_KR