



FACULTY: ENVIRONMENTAL ENGINEERING

COURSE TITLE: Water supply and sewerage

Number of contact hours: 60

Duration: 1 semester (fall)

ECTS credits: 6

Programme description: The course comprises lectures and workshops. It contains processes and methods for design and operation of drinking water distribution and wastewater collection systems in modern smart cities. Specific problems discussed during lectures and workshops will cover:

- water demands
- water distribution systems
- energy efficiency in water supply systems
- sanitary systems
- stormwater systems
- vertical gardens and green roofs
- contemporary materials in water and wastewater systems and influence on water quality
- pipe and sewer rehabilitations,
- decision making trenchless technologies

Students will gain new skills and competences. They will understand the requirements for design, components and methods for contemporary water and wastewater systems. They will know how modern water and wastewater systems should be designed and economically operated.



Course type: lectures (30), workshops (30),

Literature:

1. Dąbrowski W., Buchta R., Statistical evaluation of calcium carbonate equilibrium in natural water, *Lakes& Reservoirs: Research and Management*, 2000,5,99-104,
2. Dąbrowski W., Buchta R., Mackie R.I., Impact of water blending on calcium carbonate equilibrium in water distribution systems – technical note, *Journal of Environmental Engineering, ASCE* 2004,Sept.,1059-1062
3. A. P. Moser, Steve Folkman, Buried pipe design, Utah State University, 2001, Mcgraw-Hill
4. Tiago Luna a, João Ribau, David Figueiredo, Rita Alves, Improving energy efficiency in water supply systems with pump scheduling optimization, *Journal of Cleaner Production*, 213, March 2019, 342-356
5. Madryas C., Kolonko A., Nienartowicz B., Szot A. *Underground Infrastructure of Urban Areas*, 2015 CRC Press, London
6. Zielina, Michał; Młyńska, Anna, The influence of pipe coating technologies on drinking water quality, *Current issues in water treatment and water distribution*. Vol. 5, 2016, 225-234.
7. Zielina M., Dąbrowski W., Lang T., Assessing the risk of corrosion of asbestos – cement pipes in Kraków's water supply network, *Environmental Protection Engineering*,2007,33,4,17-26
8. Bąk, Joanna, Modelling the relationship between LID practices and the runoff of rainwater through the example of rainfall data for Krakow, VI International Conference of Science and Technology 2018 Modern Cities : Infrastructure and Environment

Assessment method: test, joint group projects

Lecturer: Wojciech Dąbrowski, Michał Zielina, Joanna Bak

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