



Master's Thesis
in cooperation with DOW Olefinverbund GmbH

Development of a Digital Twin Concept for Water Network

Topic: Development of a Digital Twin Concept for Water Network
Field of study: Process Automation / (Environmental) Process Engineering

Project description:

At the Dow site in Böhlen, different initiatives are in place for the development and implementation of sustainable solutions for the responsible use of water resources. Our team is part of a broad European consortium that is addressing water scarcity in all its aspects. The aim of the project is to develop a roadmap with the potential to reduce the fresh water intake significantly. The plan will comprise details needed to establish optimized sustainable technologies for the production of cooling tower make-up water and boiler feed water. Treatment and internal re-use of cooling tower blowdown and slightly polluted waste water streams are part of the project as well.

Digitalization of the water reuse scheme will include the design for full digital smart control and integration in the existing water grid for current operations. The tasks for the student in this project will be to:

- map our system with an appropriate program
- document static mass & energy balance
- add relevant qualifiers to streams
- understand dynamics and boundaries of the system

Together with the project team, the student will specify KPIs (key performance indicators) for the roadmap, which are targeting to minimize water and energy losses.

Qualifications:

- You are currently studying for a master's degree or equivalent in Process Engineering or Process Automation
- You can prove that you have gathered relevant knowledge in process engineering or in statistical data analysis in the context of process engineering, i.e. by good marks in exams, such as process development, simulation technics, computer-aided process engineering, etc., or by bachelor or project theses, or as a student assistant.
- Experience in programming languages for data analysis is advantageous
- You have a good working knowledge of English and German.
- You are capable of working independently and enjoy being part of a team

If you are interested, please do not hesitate to contact me via e-mail (mueller@isa.rwth-aachen.de) or phone (0049-241-8023976).

Duration: 5 to 6 months
(exact timing to be discussed)

Start: between April and October 2021

Supervision:
Joint supervision by

Gergana Chapanova
DOW Olefinverbund GmbH

and

Sarah Müller
Tel. 0241/80 23976
mueller@isa.rwth-aachen.de