The Research Center Pharmaceutical Engineering GmbH (RCPE) is a global leader in pharmaceutical engineering sciences. We help our partners create and manufacture advanced medicines for patients worldwide through optimizing products and processes.

PAID BACHELOR'S THESIS / CONSTRUCTION THESIS

VALIDATION OF A SOFT SENSOR CONCEPT FOR INLINE ZINC MEASUREMENT

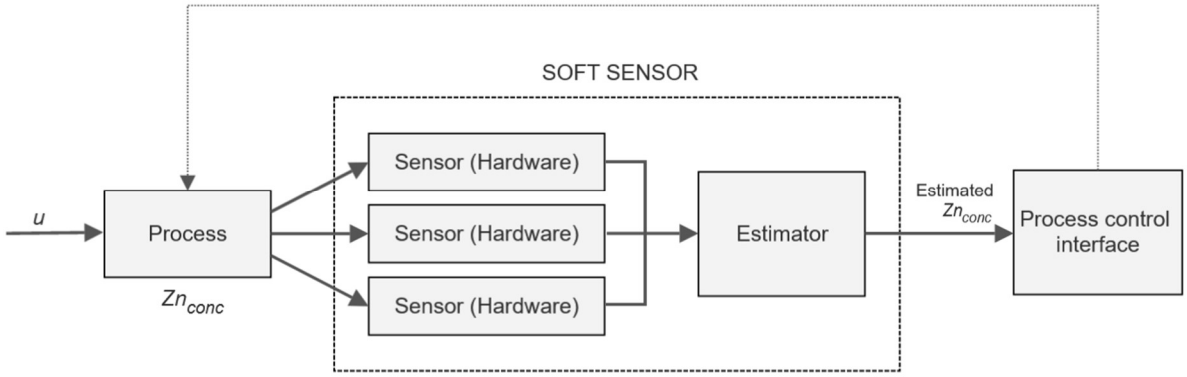
Ref. No. DA175

To dedicated students of **PROCESS ENGINEERING, CHEMICAL ENGINEERING, and CHEMISTRY** who want to participate in an industry-related project.

Objective

Process analytical technology (PAT) describes a pharmaceutical manufacturing process's design, analysis, and control by measurement of critical process parameters (CCPs). **This advanced concept** ensures the essential maintenance of quality attributes (CQAs). Commonly, CQAs are directly measured, but direct quantitative analysis of zinc most often comes with high financial expenditure. **Soft sensors** bypass this problem by estimating the target concentration based on **surrogate measurements**.

This thesis, therefore, aims to develop and implement the **soft sensor in an extraction process.**



Tasks:

- Investigate the **relationship of different physical parameters** related to the concentration of zinc
- Measure the **transitions in the zinc's concentration** at different operating points of the extraction setup
- Improve the design of a tailor-made **3D-printed auxiliary equipment** to measure the zinc's concentration in flow

Within the framework of this bachelor/construction thesis, we offer the following:

- Extensive participation in a top-level and industrially relevant research project in an international environment
- Supervised training in the task
- The assistance of experienced staff with the implementation of innovative ideas
- Access to highly modern infrastructure on the campus of Graz University of Technology

If you are interested in writing your thesis at the interface between university research and industry/ business and to contribute to the optimization of product and process development in the pharmaceutical industry, please contact us indicating the reference number.

Contact
Sandra Sünkel, Head of Human Resources
Inffeldgasse 13 / 8010 Graz, Austria
+43 316 873 30904, sandra.suenkel@rcpe.at