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 DIPLOMA / MASTER'S THESIS

MODELING AND PROCESS CONTROL FOR A CONTINUOUS BIOPHARMACEUTICAL PRODUCTION LINE

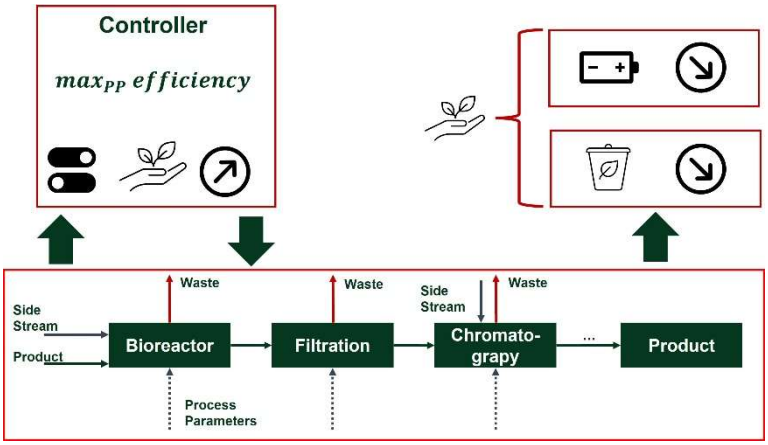
Ref. No.DA189

To dedicated students of electrical engineering, mechanical engineering, biomedical engineering, chemical and process engineering, digital engineering, physics, or related disciplines.

Objective

The focus of this thesis is on improving the sustainability of a biopharmaceutical manufacturing line. This should be achieved by applying feedback control concepts and manipulating the process parameters of the selected unit operations, e.g., of a perfusion bioreactor, or multiple filtration and chromatography units.

Process models enabling simulation based development and model-based control algortihms are required. Computationally efficient dynamic models, focusing on the parameters relevant for the developed control concepts will be developed and evaluated for this purpose.



Possible topics are

- Development and implementation of a process model for a biopharmaceutical unit operation (e.g., chromatography)
- Development of suitable model-based control algorithms for specified units
- Simulation-based evaluation and improvement of model-based control algorithms
- Development of plant-wide control algorithms improving the overall sustainability metrics

Within the framework of this diploma / master's thesis we offer the following

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

Financing

- Compensation on the basis of a service contract

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