

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

DEVELOPMENT OF A CASE STUDY FOR AUTONOMOUS DRUG MANUFACTURING

Ref. No. DA177

To dedicated students of Informatics, Software Engineering, Data Science, Digitalization, Chemical Engineering, Particle Engineering, Mechanical Engineering, or related disciplines, we offer an opportunity to write a paid Diploma/Master's thesis.

Objective

The traditional manufacturing paradigm requires materials selection, first principles engineering analysis with assumed material properties, three-dimensional (3D) computational analysis, production design and analysis, production, testing-based validation, and then design and process iteration, as necessary. We aim to transition to autonomous manufacturing practices in pharmaceutical industry (e.g., for a drug crystal) by implementing new technologies such as machine learning and artificial intelligence. Such a system takes raw materials and user-defined performance specifications as inputs and autonomously manufactures and tests part performance, either in batch or with new updated process parameters at each print. This master's thesis is a proof-of-concept study of autonomous manufacturing with the specific objective to manufacture a drug crystal.

Key tasks are to:

- Perform an extensive literature research on technologies for autonomous manufacturing
- Identification of a suitable process for a case study (access to infrastructure at RCPE)
- Development of the case study
- Evaluation and analysis of results (incl. lessons learned)

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 in the task
- Assistance of experienced staff with the implementation of innovative ideas
- Access to highly modern infrastructure on campus of Graz University of Technology
- Assistance with the publication of results

Financing

- Compensation on the basis of a service contract

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

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