



Bachelor Thesis / Master Thesis:

## Literature Research on Feedback Control Systems for Biogas Plants

Are you passionate about exploring the intersection of renewable energy and advanced control systems? Do you possess a keen interest in leveraging feedback control mechanisms to optimize biogas plant operations? Join us for an engaging Bachelor/Master thesis opportunity focused on conducting a comprehensive literature review of feedback control systems for biogas plants, offering a pathway to address the profitability challenges faced by biogas producers.

### Project Description:

In this thesis, you will immerse yourself in a thorough literature review, delving into the vast array of feedback control systems implemented in biogas plants and anaerobic digestion systems. Your primary objective will be to evaluate these systems based on their feasibility for real-world implementation, considering factors such as practicability, stability, and controllability.

- 1. Literature Review:** Your journey will commence with an in-depth exploration of existing literature on feedback control systems in biogas plants. You will analyze various approaches, from traditional PID controllers to advanced state-space models, focusing on their practical applicability in real-world scenarios.
- 2. Evaluation Criteria:** You will develop a comprehensive set of evaluation criteria to assess the feasibility and effectiveness of the identified feedback control systems. These criteria will encompass practicability, limitations, stability, and controllability, providing a holistic framework for comparative analysis.
- 3. Comparative Analysis:** Through meticulous analysis, you will compare the identified feedback control systems, highlighting their strengths and weaknesses. Your study will shed light on the suitability of each system for addressing the profitability challenges biogas producers face.

### Key Requirements:

- Strong background in feedback control systems and mathematics.
- Prior experience designing PID controllers, state-space controllers, or similar systems is advantageous.
- Enthusiasm for interdisciplinary research at the intersection of renewable energy and control engineering.
- Excellent analytical and literature review skills.
- Self-motivated and capable of working independently.

### Remote Work Opportunity:

This thesis can be conducted entirely online, allowing you to work from any location.

**Start date:** 1 April 2024.

### Contact:

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18.03.2024