



Bachelor Thesis / Master Thesis:

Energy Optimization for TUM Buildings

Are you passionate about sustainable energy solutions? Do you want to contribute to the optimization of energy consumption in buildings? Join us for an exciting Bachelor/Master thesis opportunity focused on energy optimization for TUM buildings. With the rising electricity prices, we are seeking a solution to reduce unnecessary energy consumption and explore renewable energy options.

Project Description:

In this thesis, you will embark on a comprehensive investigation to develop energy optimization strategies for TUM buildings, with a particular focus on the TUM buildings in Straubing. The project will be divided into three key areas of exploration:

Building Energy Monitoring: The first step will involve conducting an accurate assessment of the energy consumed and produced by the building. Through advanced monitoring systems, you will gather data to understand the current energy usage patterns and identify potential areas for optimization.

Integration of Smart Devices: Investigate the compatibility of various smart devices with the building's existing controller system. Determine which devices can be seamlessly integrated and evaluate their potential to reduce energy consumption. Explore installation techniques and protocols for successful implementation.

Multi-Building Optimization: Extend your research to multiple buildings within the TUM campus Straubing. Explore possibilities for energy sharing between buildings, leveraging surplus energy produced by one building to support the needs of others. Additionally, analyze the viability of incorporating additional renewable energy systems such as CHP (Combined Heat and Power), solar power plants, and other solutions.

Tasks:

- Conduct an in-depth analysis of energy consumption and production in TUM buildings.
- Explore the compatibility of smart devices with the existing building control system.
- Develop installation guidelines for integrating smart devices effectively.
- Investigate energy sharing opportunities between multiple TUM buildings.
- Evaluate the potential benefits of incorporating additional renewable energy sources.
- Create and compare multiple optimization scenarios based on energy production, economic viability, and other relevant factors.

Contact:

Interested in this exciting opportunity? For further information or to apply, please contact:

Lingga Aksara Putra, M.Sc.

Professorship of Regenerative Energy Systems

Schulgasse 16, 94315 Straubing, Room 0.A10

Telephone: +49 (0) 9421 187-118

E-Mail: [lingga_aksara.putra\[at\]tum.de](mailto:lingga_aksara.putra@tum.de)

20.07.2023