

**ENERGY CONSUMPTION AND EFFICIENCY ANALYSIS OF SWISS
GERMAN UNIVERSITY IN THE PROMINENCE OFFICE TOWER**

By

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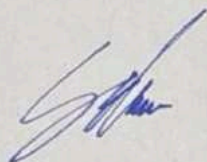


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STATEMENT BY THE AUTHOR

I hereby declare that this submission is my own work and to the best of my knowledge, it contains no material previously published or written by another person, nor material which to a substantial extent has been accepted for the award of any other degree or diploma at any educational institution, except where due acknowledgement is made in the thesis.



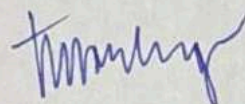
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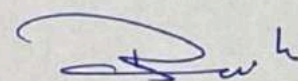


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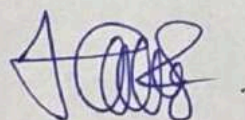


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ABSTRACT

ENERGY CONSUMPTION AND EFFICIENCY ANALYSIS OF SWISS GERMAN UNIVERSITY IN THE PROMINENCE TOWER

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Energy consumption in buildings will keep increasing due to more on-site activities. According to government regulations, it's advised to implement energy-saving measures in buildings. The objective of this research is to analyze energy consumption and efficiency in SGU. The study focused on the influence of air conditioning, lighting, and electrical socket electricity consumption on all floors to the IKE values. The methodology includes primary data taking (energy consumption and environmental data) and statistical analysis using ANOVA and multiple linear regression in Python. Result shows, the monthly averaged IKE values (in kWh/m^2) are 15 (GF), 9.5 (3rd Floor), and 12.3 (20th Floor). Air conditioning, lighting, electrical socket, and floor are statistically significant to the IKE values and have positive regression coefficient values. For environmental conditions, most rooms are in optimal comfort (temperature), outside of the recommended range (RH%), and below the minimum standard (lux level). A six-year BAU projection shows the financial loss if no action is taken. In conclusion, steps must be taken to improve energy efficiency and occupants' comfort. Recommended actions include a no-cost (change in system), low-cost (monitoring), and medium-cost (upgraded components) solution.

Keywords: Electricity Consumption in Building, Energy Efficiency, IKE, ANOVA, Linear Regression

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DEDICATION

The completion of this thesis paper would not have been possible without all the love and support from the people closest to me. I would like to sincerely bow in gratitude and dedicate this thesis to:

1. My beloved parents, Meiwardi Yuswan and Aida Anggraeni, who have been there for me since day one and never once absent in giving me all the love, support, and encouragement that I need throughout my life.
2. My family and friends, for never making me feel alone, for always being there for me, and for supporting me in every way possible.
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