

PREDICTION OF SHORT TERM ELECTRICAL ENGINEERING BUILDINGS USING LINEAR REGRESSION ANALYSIS METHOD

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ABSTRACT

Short-term electricity consumption prediction at the Electrical Engineering Building using the multiple linear regression analysis method is an effort to estimate future electricity usage based on previous consumption data. This study aims to predict short-term electrical energy consumption in the Electrical Engineering Building using the multiple linear regression analysis method. The data were obtained from a monitoring device over three consecutive weeks, with independent variables consisting of voltage (V), current (I), power (W), and power factor ($\cos \phi$). The multiple linear regression model was developed using data from the previous week and then applied to predict electrical energy consumption for the following week. The results show that the predicted values achieved a high level of accuracy, with the percentage error consistently below 2 % across all phases. Predictions for the second week, based on the first week's data, had an average error of approximately 1,17 %, while predictions for the third week, based on the second week's data, had an average error of about 1,42 %. Predictions for the fourth week, derived from the third week's data, showed an average error of only 0,16 %. This high accuracy is attributed to the relatively stable load pattern of the building from week to week.

Keywords: *Electrical Energy Prediction, Multiple Linear Regression, Energy Monitoring, Electrical Phase.*