

# EFICIENCIA ENERGÉTICA EN LA UNIVERSIDAD SIMÓN BOLÍVAR: ESTRATEGIAS INNOVADORAS PARA UN FUTURO SOSTENIBLE

## **Nombres y Apellidos**

Diego Andrés Cuello Castro  
Diego Jaramillo Donado  
Sergio Andrés Pantoja Campos  
Camilo Andrés Pérez Ojeda  
Cediel Sánchez Suarez

## **Código estudiantil:**

202012922928  
202013023106  
201912815431  
202021428717  
202023027645

Trabajo de Investigación del Programa **Ingeniería Industria, Ingeniería Mecánica, Ingeniería Mecatrónica e Ingeniería Biomédica**

## **Tutor(es):**

**Hernán Hernández Herrera**

## RESUMEN

Este trabajo de investigación se centra en la eficiencia energética en la sede 1 de la Universidad Simón Bolívar en Barranquilla, que comprende los bloques A y B. El estudio aborda las estrategias para reducir el consumo de energía en edificios universitarios, con un enfoque particular en los sistemas de climatización, iluminación y la implementación de tecnologías avanzadas. Para evaluar los potenciales de ahorro se colocó un analizador de redes y se realizaron las mediciones en el transformador principal, así como en los diferentes bloques y pisos que son alimentados por este transformador. Con la energía activa obtenida y después de realizada una revisión bibliográfica pudo estimarse cuál sería el ahorro en esta sede a partir de la implementación de cada medida brindando unos posibles ahorros que rondarían los 15026 kWh/mes para un valor económico superior a los 18 millones de pesos.

**Palabras clave:** Eficiencia energética, Edificios universitarios, Consumo de energía, Sistemas de climatización, Sostenibilidad ambiental.

## ABSTRACT

This research work focuses on energy efficiency at the Simón Bolívar University, Barranquilla, which comprises blocks A and B, at its headquarters 1. The study addresses strategies to reduce energy consumption in university buildings, with a focus on HVAC systems, lighting and the implementation of advanced technologies. To evaluate the potential savings, a network analyzer was installed, and measurements were taken in the main transformer, as well as in the different blocks and floors that are fed by this transformer. With the active energy obtained and after a bibliographic review, it was possible to estimate the savings in this headquarters from the implementation of each measure, providing possible savings of around 1,526 kWh/month for an economic value of more than 18 million pesos.

**Keywords:** Energy efficiency, University buildings, Energy consumption, Air conditioning systems, Environmental sustainability.

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