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Cost Estimation Tool for Physical Improvement Projects at the University of Puerto Rico Mayagüez Campus

JR Rodríguez-Colón, LT Silva-Jetter, and MI Méndez-Piñero

Industrial Engineering Department,
University of Puerto Rico-Mayagüez
Mayagüez, Puerto Rico, USA

Corresponding author's Email: juan.rodriguez65@upr.edu

Author Note: *Juan R. Rodriguez-Colon and Laura T. Silva-Jetter* are Industrial Engineering undergraduate students with expected graduation dates in 2017 and 2018, respectively.

Dr. Mayra I. Méndez-Piñero is an Associate Professor of Industrial Engineering at the University of Puerto Rico-Mayagüez. She received her Ph.D. degree in Industrial Engineering at Texas A&M University in 2009, M.S. and B.S. degrees in Industrial Engineering from the University of Puerto Rico at Mayagüez in 2001 and 1987, respectively. Her research areas of interest are mainly in Cost Analysis and Control, Cost Management, Cost Optimization, Engineering Education, and Social Impact of the Applications of Industrial Engineering.

Abstract: This research aims to help and facilitate the Mayagüez Campus of the University of Puerto Rico in its decision making regarding projects of physical improvements. This project represents a collaboration between industrial engineering department and the institutional planning office whose objective is to evaluate the effectiveness of the services offered in campus and to develop strategies through research and statistics for continuous improvement. This kind of projects are worked either by external contractors or by an internal campus office. Decision making in this regard is not currently based on a statistical analysis or historical data to validate or justify such decisions. The purpose of this research is to compile both sources of information and analyze them to carry out a cost analysis that provides the campus with an efficient way to make decisions to assign the improvement projects to external contractors or to campus personnel. The ultimate goal is to provide the planning office with a tool that estimates, based on historical data and statistical analysis, the cost of a project while comparing it to help in the decision-making process by justifying the correct course of action. Using historical data, projects were classified into various categories and costs were evaluated for each project. A preliminary Microsoft Excel tool was created to estimate the cost of future projects. The data of four projects was used to verify and validate the cost estimation tool. The results presented are from the initial stages of the research considering air conditioning projects as an example. This is an ongoing project that will be continued in the upcoming semesters to include all the relevant physical improvements projects' categories.

Keywords: Cost Estimate, Improvement Projects, Statistical Analysis