


**An Integer Programming Approach  
to Replacement Policy of Parts  
of 'IKOT' LaSalle vehicle**

**An Undergraduate Research Presented to  
the Mathematics Department  
College of Science  
De La Salle University–Dasmariñas**

The seal of De La Salle University - Dasmariñas is a circular emblem with a scalloped border. It features a central shield with a blue field containing a white cross and a red field containing a white cross. Above the shield is a green star. The shield is flanked by two green olive branches. The text "AKLATANG EMILIO AGUNALDO INFORMATION RESOURCE CENTER" is written in a circular path around the top of the seal. At the bottom, it says "De La Salle University-Dasmariñas • Since 1977 • Dasmariñas, Cavite, Philippines".

**In partial fulfillment of the requirements for the  
Degree of Bachelor of Science in  
Applied Mathematics**

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All these contributions are well-acknowledged and appreciated, and this humble work is dedicated...

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### **ABSTRACT**

Antig, Venice Carmel C. *An Integer Programming Approach to Replacement Policy of Parts 'IKOT' LaSalle vehicle.* De La Salle University – Dasmariñas. October 2009

The study entitled “An Integer Programming Approach to Replacement Policy of Parts of ‘Ikot’ Lasalle Vehicle” is conducted to review the operations of the first ever ‘Ikot’ Lasalle vehicle operated by the POLCA or the Parents Organization of Lasalle Cavite, Inc. The operations however referred to here focused on the repairs and maintenance of the vehicle.

The objectives of the study are the following:

1. To determine the durability of each part replaced and compare it with the actual replacement date;
2. To identify system/practice in the maintenance of the vehicle;
3. To look into the efficiency and effectiveness of the entire operations of the transport facility; and
4. To finally evaluate the results of operations in consideration of the control and maintenance system of the replacement of parts relative to profitability.

The Integer Programming Approach was used to answer the first two objectives with supported computations.

2. For the succeeding years of operations, a yearly budget allocation should be provided for each part to be able to realize cost efficiency and effectively manage operations;
3. Regular driver orientation cum reminder that will enhance a hired driver skills and help maintain the vehicle as a result of ideal driving habits and concern for its maintenance;
4. Finally, a further study should be made to check on the views of the riding public as to the efficient servicing of the vehicle for the entire community. This can very well reflect if the proper repairs, maintenance and replacement system have been given serious thought and attention, simply by the frequency of service interruptions and possibly brought about by urgent and unexpected replacement of parts.
5. Taking this as an example of the application of integer programming, students are encouraged to take other studies where this type of linear programming can be applied.