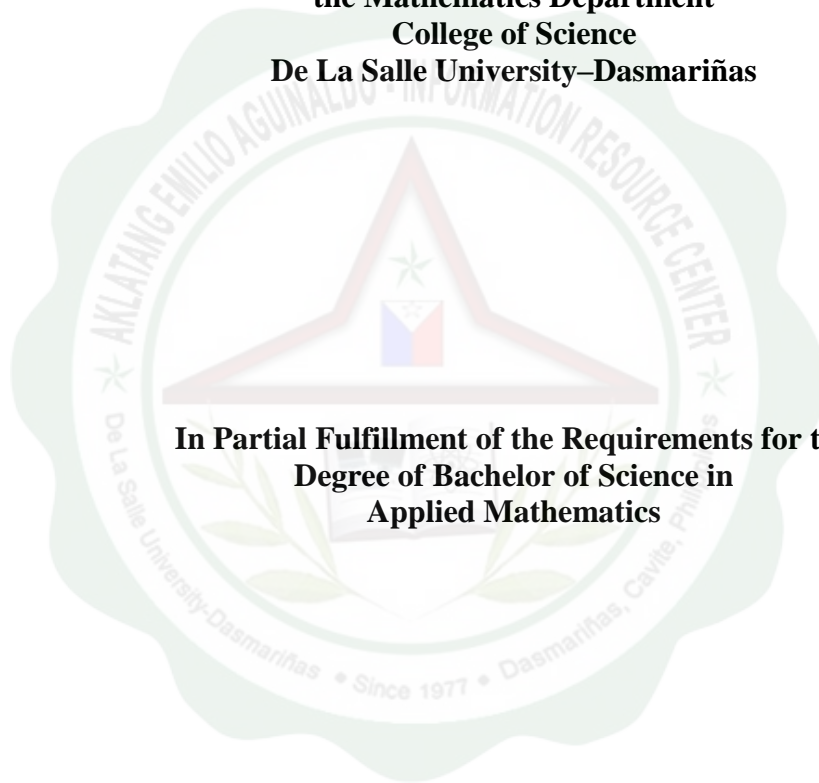




De La Salle University – Dasmariñas

**Replacement Policy for
the Parts of Photocopier
using Integer Programming**

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



**In Partial Fulfillment of the Requirements for the
Degree of Bachelor of Science in
Applied Mathematics**

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TABLE OF CONTENTS

	PAGE
TITLE PAGE	i
ACKNOWLEDGEMENTS	ii
ABSTRACT	iii
CHAPTER	
1. INTRODUCTION	1
1.1 Background of the Study	1
1.2 Theoretical Framework	2
1.3 Statement of the Problem	6
1.4 Significant of the Study	6
1.5 Scope and Limitation	7
1.6 Definition of Terms	7
2. REVIEW OF RELATED LITERATURE	9
2.1 Theoretical Literature	9
2.2 Conceptual Literature	15



3	METHODOLOGY	21	
	3.1	Research Method/Procedure	21
	3.2	Time and Place of the Study	21
4	PRESENTATION, INTERPRETATION AND ANALYSIS OF DATA	22	
	4.1	Presentation of Data	22
	4.1.1	Integer Programming Application and Analysis	30
	4.2	Data Analysis	52
5	SUMMARY, CONCLUSION, AND RECOMMENDATION	53	
	5.1	Summary	53
	5.2	Conclusion	54
	5.3	Recommendations	54
	BIBLIOGRAPHY	56	
	APPENDIX	58	
	A	Pictures of the Results of Integer Programming using TORA (Problem 1)	59
	B	Pictures of the Results of Integer Programming using TORA (Problem 2.1)	60
	C	Pictures of the Results of Integer Programming using TORA (Problem 2.2)	61



D	Pictures of the Results of Integer Programming using TORA (Problem 2.3 – Problem 2.5)	62
E	Pictures of the Copy Center and the photocopier	63



**ABSTRACT**

The study entitled “Replacement Policy for the Parts of Photocopier using Integer Programming” was conducted to review the maintenance and repairs of the five photocopiers owned by a copy center located at Sampaloc, Manila.

The objectives of the study are the following:

1. To determine the life of each part replaced and compare it with the actual replacement date.
2. To identify system/practice in the maintenance of the photocopier.
3. To have an assessment of operations in consideration of the control and maintenance system of the replacement of parts relative to profitability.

Two models were formulated using integer programming to assess the operation of the copy center. The 1st model was used to minimize cost in the maintenance of copier parts. The second model was formulated to utilize the maximum life of particular parts.

Based on the results of the study, it was noted that the company did not pay too much attention on the factors like age of the machine and cost of procurement as well as maintenance.



It was evident that specific parts had to be replaced on time so as not to put at stake the cost efficiency and budget of the company.

Based on the presentation and analysis of data and the summary of findings highlighted, the following recommendations are suggested:

1. Assign a number for each photocopier and provide list of parts for each photocopier for easy monitoring of repair and maintenance and future replacement.
2. Provide record of replacement schedule for every machine for accurate analysis and computation of cost.
3. Apply same study in the company that uses plotter or other huge printing machines which yield high profit than copy center.
4. Make this as reference for other studies that linear programming can be applied.