



Application of Activity-based Costing and Integer Linear Programming for Production Planning: A Case Study of Jewelry Manufacturing

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Abstract

This research is an analysis of cost by using activity-base-costing and linear programming to find the maximum profit by optimizing production. In the case study of jewelry production, we have studied three types of products, namely A, B, and C. As each type has different process of production their manufacturing costs were inconclusive for determining the product price. So, we chose to use the activity-base-costing to define the production cost and the simplex method to analyze and calculate the optimal product quantity that gives highest profit. Furthermore, we used branch and bound algorithm to solve the integer linear programming for figuring the product quantity. From the study it was found that the optimum quantity of product A, B, and C are 1,095, 1,033 and 793 pieces per day and the total profit is 322,860 baht per day.

Keywords : Activity-based Costing, Linear Programming, Integer Linear Programming