MATHEMATICAL MODEL AND OPTIMIZATION IN PRODUCTION INVESTMENT

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ABSTRACT

This final project discusses about several programming models for transport and linear programming to solve the problem of production investment. The problem which contained in this thesis is the location of production is more than one.

In the production process, at each location, the product must be processed through several operations that more than one. In one production site, the amount of each production operation through which the same magnitude, but each operation at each location has a different capacity.

Total demand of products to be produced have been determined, so the manager must determine the decision of the division of the number of products produced in each location so that the total demand can be met appropriately.

The problem is, due to a lack of production capacity at each operation. This led to the need to increase capacity or decrease in capacity. When done adding capacity then have to spend an additional investment of each product is added, as well as reducing the capacity of which requires investment wasted spent on each product. The same operation at each location have the value of additional investment and the investment is wasted, but different operations vary its investment value.

Settlement of this matter, methods of transportation can not be used, because the existence of two investment costs in each operation. However, this can be solved using linear programming model based on production investment.
This final project will also analyze things - matters related to the solution of the model and obtain a polynomial algorithm. In this final project will apply the theory - the theory of real-life examples to demonstrate the complexity of the algorithm.

Key words: Linier programming, optimization, production.