

UNIVERSITI TEKNOLOGI MARA

TECHNICAL REPORT

**NONLINEAR PROGRAMMING FOR
OPTIMIZATION SECTIONAL AREA IN
BUILDING A HOUSE**

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ABSTRACT

In mathematics, nonlinear programming is the process of solving optimization problems where some of the constraints or the objective function are nonlinear. So, this research presents a nonlinear programming technique in minimizing the cost based on the area of each segment in a house. The aim of this research is to minimize the cost of house construction based on bungalow design in Malaysia by using nonlinear programming and to maximize the area of each segment of the bungalow based on the cost projected. The method used in the previous study is more focused on resizing the bedroom into same size and area but the method in this research are more focused on maximizing different size of bedrooms. The minimum cost of building the house is RM94489.82 and the maximized area of the house was $1763.18ft^2$. The validation was done by sensitivity analysis by comparing the house with different number of bedrooms.