

## **Multidisciplinary Design Optimization (MDO) for Designing The Vessel Truck Using Augmented Lagrange Multiplier Method.**

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**Abstract:** Progress in design optimization is swift. The progress is in line with competitions in the globalization era that call for efficiency and optimization in all aspect of engineering field. In engineering design process, optimization is performed to reduce time, cost, and to improve quality and accuracy of the design. All of these are essential to produce more and more competitive products. The objectives of the optimization process in this research are to implement an optimization method in vessel truck design, to compile optimum scheme strategy for the vessel of truck, and to establish computer program for design optimization of vessel truck. This research use MDO methods for designing the vessel truck. The design of the vessel truck covers some aspects. All these aspects need to be formulated in mathematical equation to obtain the optimum design. The strategy of the design optimization takes vessel truck dimensions as the design variable, vessel truck volume as the objective function and Newton second law (NSL) as the equality constraint. The strategy developed in this study can be used to help the initial design stage in obtaining the optimum initial dimension of vessel truck. Software resulted for early optimization process of vessel truck can be further developed widely for other application.

**Keywords:** design optimization, MDO, ALM.