DEVELOPING CATERING TRUCK SCHEDULING FOR INFLIGHT FOOD TRAY DELIVERY IN AN AIRLINE CATERING COMPANY

By

Shanti Rakshita Wisesan
11507016

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SWISS GERMAN UNIVERSITY
The Prominence Tower
Jalan Jalur Sutera Barat No. 15, Alam Sutera
Tangerang, Banten 15143 - Indonesia

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STATEMENT BY THE AUTHOR

I hereby declare that this submission is my own work and to the best of my knowledge, it contains no material previously published or written by another person, nor material which to a substantial extent has been accepted for the award of any other degree or diploma at any educational institution, except where due acknowledgement is made in the thesis.

Shanti Rakshita Wisesan

Student _____ Date _____

Approved by:

Dr. Tanika Dewi Sofianti, S.T., M.T.

Thesis Advisor _____ Date _____

Dr. Adhiguna Mahendra, M.Kom., M.Sc., MSV, MSR

Thesis Co-Advisor _____ Date _____

Dr. Maulahikmah Galinium, S.Kom., M.Sc.

Dean _____ Date _____

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ABSTRACT

DEVELOPING CATERING TRUCK SCHEDULING FOR INFLIGHT FOOD TRAY DELIVERY IN AN AIRLINE CATERING COMPANY

By

Shanti Rakshita Wisesan
Dr. Tanika Dewi Sofianti, S.T., M.T.
Dr. Adhiguna Mahendra, M.Kom., M.Sc, MSV, MSR

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Vehicle scheduling plays an important role in an efficient daily operation of delivering inflight food tray. The problem of assigning trips to vehicles is a major issue and an important decision problem in daily operation at the company. The aim of this research is to develop a scheduling program for High Lift Truck based on flight scheduling, while minimizing idle time of vehicle. A mathematical model is formulated and the solution could return optimal scheduling up to 30 trips with unreasonable run-time. Based on the hard nature of the problem where trips exceed 200, two heuristic are adopted and developed; Trip-based Scheduling Heuristic and Vehicle-based Scheduling Heuristic. Simulation results reveal that the heuristics return exceptionally good solutions for problem instances with up to 350 trips within only seconds, and are likely to perform well for larger instances. However, after scenario testing and analysis, Trip-based Scheduling Heuristic is proven to be more efficient.

Keywords: Exact Algorithm, Heuristic, Optimisation, Python Programming Language, Vehicle Scheduling

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DEDICATION

I dedicate this thesis to my beloved parents,
whose affection, encouragement and support keeps me going.

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