

Preface

This report is part of my Simulation Assignment, which is a substitute of the Literature or Research Assignment ME01PEL03 for my study program of the master Production Engineering and Logistics at the faculty of Mechanical, Maritime and Materials Engineering at the TU-Delft.

This Simulation Assignment is intended to provide a simulation application which can be used for educational purposes, based on a case in the book: *The Delft Systems Approach*. Because the process descriptions of the elements in the simulation were already described in the book, the complexity of devising how the simulation should work was reduced. Nevertheless I underestimated the complexity of building a user-friendly and foolproof simulation program, although I deliberately challenged myself to include an elaborate extension of the program, to help the user create a bat-file to run a batch of simulations on the same program.

Furthermore I have chosen to write this report in English. For one part that is because the book on which the simulation is based: *The Delft Systems Approach*, is in English and consulted quite often for parts of this report. On the other hand I think it was good to practice my English, because I am aware it has not such a high level.

Finally I would like to thank Dr.ir. H.P.M. Veeke for providing this assignment and guiding me to the final result. I am convinced that by this assignment I learned several things that might be useful for other simulations, for example during my MSc project.

Summary

A simulation program has been built for the automated container terminal described in the book: *The Delft Systems Approach*. In the simulation, on a global level in the design stage, several parameters can be varied, in order to see their influence on the performance of the terminal.

The simulation program is going to be used for educational purposes, in combination with the case described in the book. Therefore additional requirements are that the program is very user-friendly and 'studentproof' / foolproof.

This report describes how the simulation works, how the program is constructed and which measures have been taken to ensure the user-friendliness and foolproofness of the simulation program. Appendix E contains the programming code for the simulation program.

Furthermore the simulation of this simulation program has been verified by means of comparisons with calculations, reasoning and the results from the experiments in the book.