SUMMARY OF MASTER'S DISSERTATION

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Title: An Excel-Based Simulation for Students for Comparison between JIT and TOC

Abstract

Through the years, production managers applied different methods and theories to optimize the production processes. This contributed the growth of manufacturing. Theory of Constraints (TOC) and Just in Time (JIT) are two of the most successful process controlling methods. To teach, students and future managers, several business games are developed.

In this study, we use a TOC game developed in a business class in SDM as a reference. We propose to add the JIT scenario. We introduce a simulation tool to extend the scope of the game and allow the students to experiment different parameter settings. Our goal is to let the students, with little knowledge of operations management methods, compare JIT and TOC in the context of demand variation and capacity fluctuation.

The results of the study define the scope of applicability of each method based on its behavior in an environment of variability of market and resources capacity.

The originality of the study is to enrich the learning experience and to demonstrate under which conditions (on the same production line), JIT and TOC are performing better.

Key Words (4 words): TOC, JIT, Simulation, Comparative analysis