

Siraprapha Deepradit 2010: Determining the Optimal Kanban Cards in Conveyor Production Processes by Using Simulation Models. Master of Engineering (Industrial Engineering), Major Field: Industrial Engineering, Department of Industrial Engineering. Thesis Advisor: Assistant Professor Roongrat Pisuchpen, D.Eng. 123 pages.

This research studies simulation modeling for conveyor production process of a factory. Researcher shows application of kanban card in conveyor production process. This production system of a factory has 2 products and consists of 6 workstations. Each workstation uses conveyors to convey parts. The factory faces problems, such as delay in production and large work-in-process. Therefore, it would like to find the appropriate production system that use kanban system to manage part when demand arrival. This paper presents a simulation modeling by using Arena. Moreover, the performance between the tradition and pull kanban production systems is studied and compared. Two performance measures are the average work-in-process and the average cycle time. In addition, this research applies optimization technique by using the OptQuest for Arena under uncertainty system in accordance with current situation. This model can be applied to a factory that has a similar production system and also be used as a decision-making tool. The result shows that the pull kanban production system increases efficiency of production system because average work-in-process of product A decreases by 64.40%, average work-in-process of product B decreases by 63.39%, average cycle time of product A decreases by 43.02% and average cycle time of product B decreases by 34.92%.

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Thesis Advisor's signature