

Benjaporn Lertsatthananont 2009: Performance Improvement of Garment Factory by Using Simulation Technique. Master of Engineering (Industrial Engineering), Major Field: Industrial Engineering, Department of Industrial Engineering. Thesis Advisor: Associate Professor Pippahop Lalhitaporn, M.E. 140 pages.

This research proposes the simulation technique for the clothes manufacturing behavior analysis. The default model of the case study factory and the improve models from this research are simulated by the Arena software. The real work case study shows that the push production system is used for the default model to push product through the next work station and do not consider about the demand rate. The improve models consist of the pull production and the kanban system. Production line flow work and buffer sizes (work in process) are controlled to be appropriate numbers by this system. There are three simulation approaches to improve the default model. First model uses the pull and kanban system to modify the current production line which not moves the position of any machine. The second model is same like the first but reduces the embroidery department work ship from 2 ships to be 1 ship. Last model is upgraded from the second by rearrange the shape of the production line to be the Cell manufacturing.

The simulation results show that the first improve model after compare to the default model, can reduces work in processes by 92.54%, work flow times are reduced by 37.40% and increases throughput by 6.14%. For the second improve model, work in processes are reduces by 92.55%, reduces work flow time by 39.35% and increases throughput by 4.80% And the Cell manufacturing can reduces work in processes by 92.74%, reduces work flow time by 37.48% and increases product output by 2.31% In the case of economics the Cell manufacturing make the maximum profits about 12,568,500 baht and make the minimum inventory investment about 1,009,960 baht after compare to another improve model.

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Thesis Advisor's signature