

MINIMIZING LEAD TIME TO INCREASE PRODUCTION EFFICIENCY IN APPAREL INDUSTRY THROUGH LINE BALANCING

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ABSTRACT

In this paper, the concept of minimization of the lead time using the line balancing technique in apparel industry has been introduced by authors. In the context of apparel industry, lead time dignifies the latency between initiation and completion of the apparel manufacturing process; while line balancing denotes a production strategy which involves balancing operator and machine time in a synchronized format to match the production timeline. In this research work, production timeline of some basic apparel products has been observed by authors. Information from some leading apparel industries has been accumulated in this paper and then the production timeline has been revised after implying the line balancing technique with consent of respective industries to find out whether the new implementation can mitigate the lead time. The whole work has been conducted on the basis of real data of production of basic apparel products. Hence the final observation has been charted and for better understanding, the results have been represented in several graphical outlooks. The main objective of this paper is to find out a sustainable strategy to minimize lead time in apparel industries to attain more profit and more efficiency.

Key words: Lead Time, Line Balancing, Apparel Industry, Production Efficiency, SMV.

INTRODUCTION

The garment industry has traditionally been contributed as the first step towards industrialization in developing countries. Nowadays, a day's apparel manufacturing industries are trying to develop their current production system and situation and continuously looking for new production tools and techniques to keep swiftness with the rapid changes of the trend in consumers of apparel products. To keep pace with the emerging huge global apparel market, our industries must focus on improving production efficiency & productivity; reduce lead time, ensuring proper quality requirements. Although a garment factory consists of several departments, there is no doubt that the sewing department is the most important department in the whole firm. This research focuses on minimization idle time through proper Line balancing and Time study.

Line balancing is leveling the workload across all processes in a line stream to remove bottlenecks and excess capacity. Line balancing is used to make the production line more flexible to absorb external and internal irregularities. For apparel industry, line balancing is a well appreciated production strategy where the operators and machines are altered as per the suggestion from IE and planning department. It is done to enhance productivity and efficiency. Generally, in the apparel industries, the machine operators have to wait for some times between the execution of two consecutive operations which is called idle time and this actually demotivate the worker efficiency and wastes time. This actually drags an industry to the verge of loss and to exempt from this dilemma, industries need to imply line balancing which also contributes in mitigating lead time, as per this study. Lead time is actually the assigned timeline from buyer's side to complete the production of an order. The faster an apparel industry manages to execute an order; the shorter the lead time becomes.

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