

Determination Of The Optimal Process Means And Production Cycles For Multistage Production Systems Subject To Process Deterioration

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Summary

In this paper, a multistage manufacturing system is considered. Each stage consists of a process which is subject to random deterioration with time. A mathematical model is developed for this problem to minimize the cost of maintenance (process adjustments), quality, and penalties for unfulfilled demand for items. The model finds optimal initial settings of the process means and optimal cycle lengths. A Hook and Jeeves search algorithm is used to optimize the model, and a numerical example is provided. Sensitivity analysis of the given model is presented. Finally, some suggestions for improving performance of the process are presented.

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