

## Application of clustering algorithm to optimizing tool handling management for FMS

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### Abstract

This study implements clustering algorithm on the tool-handling problem in the flexible manufacturing system and compares its performance with traditional mixed integer programming approach. The results of simulation show that the percentage of error to optimum applying clustering algorithm to three-machine cases is not worse than that of two-machine cases. Meanwhile, CPU time ratio of MIP to clustering algorithm for three-machine is not dominated by two-machine cases. We conclude that by modifying clustering algorithm appropriately then an appropriately modified clustering algorithm could be implemented on a tool-handling problem with larger scale and still hold its efficiency.

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*Keywords* : FMS, tool handling management, clustering algorithm.

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