中文摘要

本論文針對多廠區訂單分配（Multi-plant order allocation）問題進行探討，此問題模式下企業擁有多間製造不同產品之工廠，且生產成本、產能、運送成本等也各自不同，因此這些因素都必須納入訂單分配時的考量。研究中同時考量三個目標：製造成本、配送前置時間和工廠平均產能利用率之均衡性，利用層級分析法（AHP）將三者進行結合，以達到多目標規劃。除了提出此模型架構外，並以基因演算法（Genetic Algorithm）結合層級分析法進行問題的求解，以達到最佳的分配方式，而為了加強求解的品質與效率，利用禁忌搜尋法(Tabu Search)來改善演化過程中，對於產生不可行解的處理方式。在研究最後，將計算結果與過去研究成果作比較，顯示採用基因演算法混合禁忌搜尋法，在求解多廠區訂單分配問題時，可以得到較佳的結果。

Abstract

This research focuses on multi-plant order allocation problem. In this problem surrounding, enterprise has a lot of plants which manufacture different product. Every plant has different production cost, production capability and shipping cost. All factors will be considered when processing order allocation. This research considers three goals: production cost, shipping cost and balance of production capability. It is using AHP to take three goals into account to achieve multi-programming. Besides making this problem model, this problem is solved by Genetic Algorithm combined with AHP. In order to enhance the quality of solution, Tabu Search is used to improve the process when handling the infeasible solution. Finally, the result will be compared with past research to show that it is better to use GA missed with TS in multi-plant order allocation.