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MULTI-OBJECTIVE OPTIMIZATION OF ACCURATE PRODUCTION AND MAINTENANCE PLANNING USING PSO ALGORITHM, IN ORDER TO REDUCE PRODUCTION AND WAREHOUSING COSTS

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ABSTRACT

Production planning is one of the main factors affecting real productivity and efficiency. Effective scheduling programs greatly improve the performance of production systems. In this research, an extended multi-objective optimization model is defined. The proposed model includes minimizing service time, production costs, and minimizing maintenance costs. The advantage of the proposed model is that it is defined based on the Poisson distribution of the reduction of the number of failures, also the defined Gaussian model can determine the optimal production capacity according to the previous data. In this regard, the function of the second goal is to reduce maintenance costs. High accumulation of inventory increases the cost of the organization or industrial plant and hides the problems, and keeping the inventory at the optimal level reveals the manageable problems that can be corrected in the organization and production. The proposed model is finally solved and compared using a multi-objective suspended particle swarm optimization algorithm and genetics for a numerical example.

KEYWORDS: *Production Planning, Warehousing, Maintenance, Mpso Algorithm, Genetic Algorithm.*

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