

A firefly algorithm to solve the manufacturing cell design problem [Resolución del Manufacturing Cell Design Problem Utilizando el Algoritmo Luciérnaga]

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This research focuses on modeling and solving the Manufacturing Cell Design Problem (MCDP) through a Firefly Algorithm (FA). The MCDP consists in creating an optimal design of production plants, through the creation of cells that group machines and parts. The goal of the problem is to minimize movements and exchange of material between the cells. The FA is a metaheuristic based on the mating behavior or flash of fireflies, in order to communicate with each other or attract potential prey. Fireflies move through the search space by means of attraction that they feel toward other fireflies until the stop criteria established is complied. Finally, to test the efficiency of FA, the results obtained have been compared with previous research illustrating encouraging results. ©

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Firefly algorithm

Manufacturing cell design problem

Metaheuristics

Algorithms

Bioluminescence

Cells

Design

Fire protection

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Optimization

Cell design

Firefly algorithms

Mating behavior

Meta heuristics

Metaheuristic

Optimal design

Production plant

Research focus

Cytology