N-job, m-macine lot streaming problem with learning effects

ABSTRACT

The abilities of workers for performing same or similar tasks can be improved by repeating them. This phenomenon is recognized as learning effects. Many researches performed on the effects of learning in scheduling problems. However, there is not any study about lot streaming problem with learning considerations. In this study, we develop mixed-integer mathematical models for multiple products and multiple machines lot streaming problem with learning considerations. With the proposed model formulation, five goals of problem, namely determining the sequence among the sublots, optimal number of sublots for each lot, the size of the each lot, inventory levels and the size of the individual sublots, are solved simultaneously. Proposed models are tested by several numerical examples and results are presented.

Keyword: Lot sizing; Lot streaming; Flow shop; Learning effects; Sublot-attached set up times