SCHEDULING MECHANISM FOR SINGLE MACHINE MULTI ITEM SYSTEM

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Abstract

The Economic Lot Scheduling Problem (ELSP) concerns the problem of scheduling the production of more than one item on a single machine. The objective of ELSP is to determine the lot size and the production schedule of each item such that the total cost in form of setup costs and inventory holding costs is minimized. In this paper we consider here the problem of scheduling production of multiple items on a single facility where only one item can be produced at a time i.e. economic lot scheduling problem. We present here a model based on programming approach for determination of cyclic schedule. The first part of the model aims at finding a rotation cycle. The second part concerns diversification of the items with respect to production frequencies. Then based on the saving of set up cost and set up time the model determines production frequency of each item. These frequencies are used to create cyclic schedule.

The assumptions made here are deterministic and constant production rates and demand rates. The production capacity is constrained but sufficient to meet total demand. All demands must be met in the periods in which they occur. Another assumption is that the inventory costs are directly proportional to inventory levels.

Keywords: ELSP; Cyclic schedules; Sequence-dependent setups; Lot sizing; Sequencing.
