

عنوان مقاله:

Scheduling Flexible Manufacturing System Using Stochastic Petri Net and Fuzzy MCDM Approach

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خلاصه مقاله:

The aim of this paper is to obtain a possible design approach which is real and has some important features like considering multiple objectives simultaneously, considering the unexpected events like new orders, machine downtime, repairing the machines and the flow flexibility. First, a suitable modeling system, the Stochastic Petri Net (SPN), is developed for describing the uncertain events and the random behavior of flexible manufacturing systems such as failure of machine tools, repair time and processing time. In addition, a heuristic distribution method according to the behavior and characteristics of flexible manufacturing systems is introduced. Then multi-criteria decision-making system (MCDM) and Fuzzy Inference System (FIS) with some scheduling rules specially new proposed scheduling rule, RELIABILITY, are used to select parts and machines with the highest priority of processing with the goal of finding the best route of processing and reducing the delays and completion time of tasks when an interference is occurred in the processing of machine. To assess the relative performance of the proposed scheduling rules, different rules are compared with each other from different view point.

کلمات کلیدی:

Scheduling, Flexible Manufacturing System, Priority Rules, Fuzzy, Petri Net, Multi Criteria Decision Making, Reliability

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