A Reactive Flexible Job Shop Scheduling Model in a Stochastic Environment

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Abstract : This paper considers a stochastic flexible job-shop scheduling (SFJSS) problem in the presence of production disruptions, and reactive scheduling is implemented in order to find the optimal solution under uncertainty. In this problem, there are two main disruptions including machine failure which influences operation time, and modification or cancellation of the order delivery date during production. In order to decrease the negative effects of these difficulties, two derived strategies from reactive scheduling are used; the first one is relevant to being able to allocate multiple machine to each job, and the other one is related to being able to select the best alternative process from other job while some disruptions would be created in the processes of a job. For this purpose, a Mixed Integer Linear Programming model is proposed.