

Optimal Scheduling for food production lined based on Mixed Integer Linear Programming

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Abstract

Nowadays, as the consumer market becomes quite competitive and challenging, to gain the customer's satisfactions is vital. Therefore, Decision Support System would play an important role in mass production line. MILP would be a proper theory to utilize. Food Production System is proposed by creating MILP model and the Big-M Method can be used for solving process. Food Production System produces production schedule in order to get the required quantity on the user's requested time. Moreover, the system helps with the decision to acquire the total minimum production cost. In industrial mass production, the input data such as labor cost, machine working speed, kind of product etc... would be various according to different condition. Even though the system works on a certain constraint, it still can dynamically create updated relevant production schedules. The objective function that is minimized considers all major sources of production cost that depend on the production schedule, i.e. changeover cost, inventory cost and labor cost. The model is applied to a food production line of an industry and the results are presented and discussed.