Mayer, E.; **Raisch, J.**
Time-optimal scheduling for high throughput screening processes using cyclic discrete event models. (English) Zbl 1048.90106
Math. Comput. Simul. 66, No. 2-3, 181-191 (2004).

Summary: A method for solving the scheduling problem for a class of cyclic systems with respect to throughput maximization is presented. A strictly cyclic mode of operation is considered, where the time offset between the start of consecutive jobs is always constant. All jobs have to follow an identical time scheme. The time scheme may be restricted by due dates or time window constraints. There are no buffers between the resources of the system.

Based on discrete events systems modeling, this job shop scheduling problem can be formulated as a mixed integer linear optimization problem. Throughput is maximized by minimization of the cycle time. The method is applied to high throughput screening problems and illustrated by means of a small example.

MSC:

90B35	Deterministic scheduling theory in operations research
90C11	Mixed integer programming
90C90	Applications of mathematical programming

Cited in **1** Document

Keywords:

Cyclic scheduling; Throughput maximization; Mixed integer optimization; Discrete event systems; High throughput screening

Full Text: DOI

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