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Minimizing resource availability costs in time-limited project networks. (English)

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Summary: We consider the problem of minimizing renewable resource availability costs in an activity-on-the-node project network subject to a project due date. Project activities have fixed durations and may require the use of multiple renewable resources in constant amounts throughout their duration. Various assumptions may be made about the type of precedence relations, ready times, due dates, and task interruptability. Given a discrete, non-decreasing cost function of the constant resource availability for every resource type, the objective is to determine the resource availability levels in order to minimize the sum of the availability costs over all resource types. An effective optimal algorithm is described and extensive computational experience is reported.

MSC:

90B35 Deterministic scheduling theory in operations research

Keywords:

branch-and-bound; renewable resource availability costs; activity-on-the-node project network

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