

Integrated Formulation of Project Scheduling and Material Procurement Considering Different Discount Options

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Abstract : On-time availability of materials in the construction sites plays an outstanding role in successful achievement of project's deliverables. Thus, this paper has investigated formulation of project scheduling and material procurement at the same time, by a mixed-integer programming model, aiming to minimize/maximize penalty/reward to deliver the project and minimize material holding, ordering, and procurement costs, respectively. We have taken both all-units and incremental discount possibilities into consideration to address more flexibility from the procurement side with regard to real world conditions. Finally, the applicability and efficiency of the mathematical model is tested by different numerical examples.

Keywords : discount strategies, material purchasing, project planning, project scheduling

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