A FUZZY GRAPH MULTI-MODE APPROACH TO MODELLING AND SOLVING SCHEDULING PROBLEM WITH LIMITED RESOURCES

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In this paper we present a graph-based approach to solving combinatorial resource-constrained scheduling problem with respect to possibility to perform the individual activities in alternative ways (modes). These modes vary depending on processing time, time lags to other activities and resource requirements. A fuzzy scheduling problem can be formally defined by a number of activities-nodes that should be scheduled to minimize the project duration subject to generalized precedence relations, may require some units of limited in time use resources. Solution methodology supposes fuzzy branch and bound procedure to handle time-varying resource requirements and availabilities, activity ready times and due dates, activity start time constraints.

Keywords: fuzzy graph, combinatorial optimization, scheduling, branch-and-bound.

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