عنوان مقاله:

A Constraint Programming Approach to Solve Multi-Skill Resource-Constrained Project Scheduling Problem with Calendars

نویسندگان:

Amir Abbas Najafi - *Faculty of Industrial Engineering, K.N. Toosi University of Technology, Tehran, Iran*

Rouzbeh Nikaeen - *Faculty of Industrial Engineering, K.N. Toosi University of Technology, Tehran, Iran*

خلاصه مقاله:

The multi-skill resource constrained project scheduling problem (MS-RCPSP) is an important and challenging issue in project management. Two key factors that turn this topic into a challenging problem are the assumptions that are considered to approximate the model to a problem existing in real- world and its exact solution. In this paper, we study this problem which has a set of resources and each of them masters a set of skills. To consider real-word situations, we take into account calendars specifying time intervals during which the resources are available. The problem with and without calendars constraint are modeled with mathematical programming (MP) and constraint programming (CP). The MP is based on the model which was proposed in the literature. Computational results show that the proposed approach can efficiently solve real-size instances, and the performance of CP approach is evaluated by comparing Time-Indexed Model (TIM) and Branch and Price (B&P) approaches and computational results show the superiority of CP in terms of computational time.

کلمات کلیدی:
Multi-Skill, Project scheduling, Constraint Programming, mathematical programming