FRCPSP with Multi Skill

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FRCPSP with Multi Skill

S.sina Ariaa and Syamak Hajiyakhchali

***Abstract*—**At first it is preferred to explain about FRCPSP Model : the resource-constrained project scheduling problem with flexible resource profiles (FRCPSP) is Such a problem often arises in many real-world applications, in which the resource usage of an activity is not merely constant, but can be adjusted from period to period. Therefore the FRCPSP simultaneously determines the start time, the resource profile, and the duration of each activity in order to minimize the makespan, subject to precedence relationships, limited availability of multiple resources and restrictions on resource profiles. (Naber and Kolisch, 2014)

The other topic that is explained in this paper is multi skill problem that is explained below:

A project made up of activities that must be implemented by a staff: every member of this staff masters one or more skill(s). An activity needs a given amount of each skill with a fixed minimum level of mastering. For each unit of a skill needed, we have to assign an employee who masters the required level of this skill during the whole processing time of the activity.(Odile Bellenguez Emmanuel Néron , 2014)

In this paper we consider the flexible resource-constrained project scheduling problem (FRCPSP) with multi skill with makespan minimization as objective.

I. Introduction

The resource constrained project scheduling problem (RCPSP) is a problem that have been started since 1969 with Pritsker , Watters , and Wolfe . This problem deals with a group of activities that are to be scheduled , subject to minimize project makespan.

We have kind of RCPSP such as MRCPSP that explain a model that is used when several modes for each activity are considered that have been improved in 2010 with Hartman and Brikston.

In RCPSP and MRCPSP , the resource of each activity is constant , but in 2003 Kolish et al introduced a model that resources are not constant but also they are flexible which means that each activity could have a possibility to have its own resource in two or more than two period of times.

Another topic that we explain in this paper is Multi skills project scheduling problem , in this topic a group of staff assigned to the project. each person has many skills and at a given time each person just can use one of his skills in one activity , so it is important that witch skill should assigned to witch activity. I can point to P. Martineau that worked in this topic in very good way in 2006.

We decide in this paper to combine these two topic in one , because in flexible resources it is important to assign skills to activities so we tried to do this job in a very ingenious model.

Our idea is to combine these to topic together in future.

S.sina Aria is with the Department of Industrial Engineering, College of Engineering, University of Tehran, Tehran, Iran (corresponding author's e-mail: s.sina.aria@ut.ac.ir).

Syamak Hajiyakhchali is with Department of Industrial Engineering, College of Engineering, University of Tehran, Tehran, Iran (e-mail: yakhchali@yahoo.com).