

Fuzzy Priority Rules for Fuzzy Scheduling Problems

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Abstract- Scheduling is the allocation of resources to tasks (eg. machines to jobs) in order to ensure the completion of these tasks in a reasonable amount of time. Fuzzy logic is applied to the scheduling problems for the cases where the time parameters like processing time, makespan, etc., are uncertain, inadequate or varies in a range. Modelling by fuzzy numbers is one of the the best way to handle uncertainty in the time parameters. There are several methods proposed for the analysis of the fuzzy scheduling problems. In order to apply these methods, authors faces the problem of sequencing jobs which are defined as fuzzy numbers, i.e. ordering jobs with respect to their earliest starting or finishing times. There is no certain rule about sequencing or ordering fuzzy numbers, hence the fuzzy comparison method used in the solution may affect the efficiency of the method. In this study, fuzzy comparison methods are reviewed and their application to the fuzzy priority rules such as fuzzy shortest processing times, fuzzy longest processing times, fuzzy earliest due date, etc. are developed. Fuzzy comparison methods are investigated by means of their efficiency and an alternative comparison method is proposed. The efficiency of the proposed method is compared to the current methods in the literature.

Keywords- *fuzzy priority rules, fuzzy scheduling, fuzzy numbers, fuzzy comparison*