

## **Abstract**

The relationship between production and maintenance has always been considered as a conflict in management decision. Most studies dealing with this problem adopt the approach commonly called "scheduling with availability constraints" [1] [2], where a fixed number of preventive maintenance (PM) activities are planned first then the scheduling of production jobs is optimized considering the PM actions as constraints. Recently, integrated models have been proposed to deal with the two activities simultaneously [3] [4] [5]. Multi objective techniques have been developed to find trade-off solutions to the problem. However, one of the important issues which can influence the quality and efficiency of the obtained solutions is the insertion strategy of production jobs and PM activities to avoid conflicts and gain efficiency. In this paper, we study four types of priority rules to optimize both criteria of production and maintenance simultaneously in parallel machine shop. Rules based on fuzzy logic are proposed and compared to other crisp strategies. Computational results based on a multi objective genetic algorithm show that scheduling rules based on fuzzy logic are effective.