Similarity Coefficient Algorithm for the Group Technology Problem with Multiple Process Routings

Youkyung Won and sehun Kim
Department of Management Science, KAIST

This paper considers the machine-part clustering problem in group technology manufacturing systems in which multiple process routings for a part can be planned. Existing approaches using similarity coefficient to solve the problem suffer from computational burden which arises because they use the similarity coefficient defined between routings of parts, not machines. Furthermore, existing methods do not deal effectively with the ill-structured problems in which mutually independent cells do not exist. In this paper, we suggest the generalizesd machine similarty coefficient which can be applied to both singlerouted clustering problems and multiple-routed ones. A reduction algorithm is presented using the generalized machine similarity coefficient to effectively solve large and ill-structured problems.