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Received on: 24/01/2016

Accepted on: 22/06/2016

Developing a Branch and Bound Algorithm for Cell Formation and Group Scheduling

Abstract- Scheduling models for groups of parts have become more widely used in the industrial companies because of intensification of competition among them to get optimization in the delivery orders, reduce costs and increase quality. "Production scheduling is a meaning of verify a best or close to best achievement time plan for performing job, Production scheduling linked with the group technology applications is called Group Scheduling (GS). The objective of this research is to find optimum sequence of parts through cell formation and group scheduling. In this research, a lower bound for best possible Makespan is calculated by branch and bound algorithm and the best order of groups and parts generated. In this research, Branch and Bound algorithm was developed by the researcher to generate machine cell and part family then gathering groups to find sequence of groups as well as parts within it and calculate Makespan for problem. The developed algorithm have been tested by case study consist of four products processed on nine machine, the results from examining and testing of the developed algorithm is three machine cell and part family (MC-1,MC-2 and MC-3) as well as optimal Makespan for MCs is(344,152,122).

Keywords: Group Scheduling, Cell Formation

How to cite this article: A.B. Abdulghafour and D.H. Dhayef "Developing a Branch and Bound Algorithm for Cell Formation and Group Scheduling," *Engineering and Technology Journal*, Vol. 36, Part A, No. 5, pp. 555-563, 2018.
