CHAPTER FIVE

COMPARISON OF THE ALGORITHM WITH PRODUCTION FLOW ANALYSIS

At 100% production volume of Problem-2.1, Problem-2.2 and Problem-3, the results obtained from the present algorithm were compared with the results using Production flow analysis (PFA).

The number of machines in each machine type obtained from the present algorithm was taken as the input for PFA.

In problem-2.1 and problem-2.2, the results by the present algorithm were same as the results by PFA.

In problem-3, the present algorithm, divided the set of 21 components into 4 groups. The groups were formed with highly similar components and with balanced work load.

When PFA was applied to the problem-3, it was found that the initial steps of group analysis did not crystallize the problem in the last step (modular synthesis). Totally 20 modules were formed for 21 components in nucleus selection stage which left the problem in the original form at the modular synthesis stage. In modular synthesis sheet, identification of the groups by combining the modules was found to be a difficult task. From this, it can be concluded that if any one looks into the modular synthesis sheet of a large size problem, will certainly face difficulty in forming the groups.

By applying the proposed algorithm to the same problem, the results were obtained very quickly and easily.
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By applying the proposed algorithm to the same problem, the results were obtained very quickly and easily.
In general, it can be concluded that the proposed algorithm can be used effectively to solve large size problems.

For the problem with perfect block diagonal form at step-1 of the algorithm discussed in this research, grouping pattern was sensitive to the change in the production volume of the components. That is a separate line will be suggested for a component or a set of components within each block if sufficient work load is attained at all the stations while changing the production volume of the components in the above situation.

For the same situation, when the PFA technique was used, formation of the groups was independent of production volume.

Hence the solution using the algorithm discussed in this research is more realistic when compared to the PFA technique.