

TIME MINIMIZATION ASSIGNMENT PROBLEM WITH TWO OBJECTIVES-A LEXI SEARCH APPROACH

A. NAGARAJU, V. V. HARA GOPAL AND S. N. NARAHARI PANDIT

Abstract

Time minimization assignment problem for processing the jobs on the machine is presented certain variants in the objective function in this paper. There are n jobs to be carried out when, only m ($\ll n$) machines are available with 'time' matrix (t_{ij}) of size $m \times n$, gives the time required for job j to be carried out on machine ' i '.

Each job has to be done only on one of the machines (i.e. one can not start processing a job on one machine and halfway shift it to another machine). Also, each machine is required to process not less than m_i^l (least number of jobs) and not more than m_i^u (at most) jobs; thus, it is permissible that some jobs may have to go unprocessed i.e. $\sum_{i=1}^m m_i^u \leq n$. With this idea the problem of TMAP was developed with different objectives: The first one is to difference minimization between machine times, required for processing the jobs on these machines. second one is to minimize the maximum of the total times on the different machines.

Here, It should be noted that if $\sum_{i=1}^m m_i^u < n$, some of the jobs will necessarily be left unprocessed.

Key Words : *Combinatorial optimization, Time minimizing assignment problem, Generalized assignment Problem, Lexi-search method.*