

Name:

Model-based Decision Support

Exam 6 (home assignment)

May 21, 2015

Especially for those interested in Advanced Planning and Scheduling (I expect all of you ;-)) I have prepared a special home assignment. I have designed this home assignment last summer. Up to now there was only a single student field testing and possibly there are some obstacles and shortcomings. Therefore I allow to group carrying out this assignment.

The goal of this home assignment is to get some practical experience in sequencing and scheduling. GAMS acts as a mediator; I intend limiting GAMS programming to a necessary minimum. At TISS I provide you the GAMS code “FMS_AutonomousProductionPlan.gms”, where at the moment two jobs have to be scheduled at 3 stations (excluding input and output station).

Design a scheduling problem with up to 4 jobs and six stations at most. Provide this scheduling problem to the GAMS Code; u’ll find a description how at the beginning of the GAMS code.

After computation, the information for the optimal schedule u’ll find in the continuous variable family t ; $t(\text{operxy})$ is the time when the AGV loads job x from the output buffer of machine (station) $\mu(y)$. $I B(\text{operxy})$, $OB(\text{operxy})$, $tm(\text{operxy})$ store the time job x staying in the input buffer, output buffer and processing at machine $\mu(y)$. The job x enters the FMS system at $t(\text{operx1})$ and exits it at $t(\text{operxUnloadstation})$.

Document your scheduling problem and the optimal schedule.^{1 2} If it was not possible to compute a solution, please document your chosen scheduling problem and describe the problems occurred so that I am in a position to improve the assignment.

¹ If you went the extra mile and provided an illustration of the solution, it would be fine but not necessary.

² Pls don’t deliver mere GAMS listing prints