Name:

Model-based Decision Support

Inofficial Exam 10 (home assignment) till June 12, 2014

Note: The next exam (Exam 7) is a written one at the beginning of the class at June, 5th. In our last class in May we have discussed APS and Mathematical Programming; I'll ask you some questions and modelling techniques in this context.

As we have discussed at the beginning of this course, there are 9 exams where you can achieve 5 points each. Your worst result will be cancelled. For those interested in GAMS and Advanced Planning and Scheduling (APS) I have prepared an additional home assignment. I have designed this home assignment newly. Up to now there was no field testing and possibly there are some obstacles and shortcomings. 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.

For those participants of the course ignoring this inofficial home assignment, there is no change in the valuation key. But those who work on this home assignment I offer up to 5 points, and your worst but one result will be cancelled. 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. Document your scheduling problem and the optimal schedule.[1] [2] [3] If it was not possible to compute a solution, please document your problems so that I am in a position to improve the assignment.

[1] The information for this optimal schedule u'll find in the continuous variable family t; t(operxy) is the time when the AGV loads job x from the output buffer of machine (station) mu(y). I B(operxy), OB(operxy), tm(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(operx1) and exits it at t(operxUnloadstation).

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

[3] Pls don't deliver mere GAMS listing prints