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IE 203

HW1

Process and Due times:

Jobs	1	2	3	4	5
Process Time	2	2	2	3	1
Due Time	3	3	2	6	4

Sets:

J: Jobs (j = 1, 2, 3, 4, 5)

T: Intervals (t = 1,2…,10)

Parameters:

Pt_j: process time of job j

Dt_j: due time of job j

Decision Variables:

X_{jt}:   1   if job j begins at time t

            0   o/w

$Tardy_j$: 1   if job i could not be completed in time

            0   o/w

The Objective Function: min z = $\sum Tardy_j$

Subject to:

$\sum_{t=1}^{T-Pt\_j+1} Xjt = 1$

$X_{jt+} X_{j't'} <= 1$ first approach constraint $O(J^2*T^2)$

$\sum_{1}^{j} \sum_{s=\max\{0,t-Pt_j+1\}}^{t} Xjt \leq 1$ second approach constraint $O(T)$

j' $\in$ J / {j}

X_(j,t) = {1,0}

Tardy_(j,t) = {1,0}