**Industrial Automation – Second project**

Mathematical Programming: definition of the problem.

* Sets
  + i,j = 1, …, N Jobs
* Parameters
  + Processing time of the job
  + weight of the job
  + due date of the job
  + M Big-M coefficient
* Decision variables
  + =
  + starting time of the job
  + completion time of the job
  + tardiness
* Cost function
  + min
* Constraints
  + Big-M one job at a time
    - Si >= Cj – M(1 - xi)
    - Sj >= Ci - MXij

J1 before J3

S3 >= C1

J9 before J10

S9 >= C10

Completion time definition

Cki = Ski + Pki

Tardiness definition

Tj = max(Cj – Dj, 0)