Optimization problems in production planning

Purpose of course

- To present a challenging/applicable research field
- To give an overview of production planning
- To show that techniques learned at previous courses are applicable (IP, decomposition, heuristics)
- To present a toolbox of new techniques (branch-and-cut, forecasting, stochastic methods)
- To follow-up with graduate or master-thesis projects

Production Planning

- Strategic design
- Sales and operations planning (long horizon)
- Logistics (short horizon, between locations)
- Production scheduling (short horizon)

Literature

- Pochet, Wolsey: *Production Planning by Mixed Integer Programming*
  Own terminology, simplified mode, advanced combinatorial optimization

- Hopp, Spearman: *Factory Physics*
  Terminology as used in real life, no combinatorial optimization, simple equations

Three goals

- Understand how done now
- Understand how model as combinatorial problems
- Bridge the gap

Invited Speakers

- Experts from real-life
- Practical applications

Course Material

- `http://www.diku.dk/undervisning/2007-2008/2007-2008_b1_437`
- notes available as pdf-file
- slides
- exercises
- supplementary reading

Homework

- Handed in every Monday
- Send electronically to bjorn@diku.dk
- Handwritten homework can be scanned 1st floor, middle
- Bjorn will send exercises to corresponding teacher

- Status at course home page

Final exercise

- Course will end with a larger project
- Implementation, testing
- Get framework