Intensive Programme N.º 2013-1-PT1-ERA10-16658-P PORTALE01
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— What do the students already know ?[1]
— What do you want them to learn ?
— Why is it important for them to know it ?

Lecture plan

Previous: IST presentation
[http://web.tecnico.ulisboa.pt/~mcasquilho/CD_Casquilho/IST_international_(2013).pdf]
Algorithms: The Best of the 20.th Century & LP[PRINT]
Quality: Understand Customer Behavior And Complaints[PRINT] → **Q** →
→ Responsibility

Using the Internet: Companies have no time to study alternatives[PRINT].
The University–Industry link → **INTERNET**[Powerpoint]

Modelling: Linear Programming (LP) and Mixed Integer Linear Programming (MILP), with H. P. Williams' example models[PRINT]
http://personal.lse.ac.uk/WILLIAHP/models.htm
Plant location:
http://web.tecnico.ulisboa.pt/~mcasquilho/compute/com/Fx-new-optiloc.php
http://web.tecnico.ulisboa.pt/mcasquilho/acad/or/secure/Ingenium2009Buescu.pdf[PRINT]
{quality : engineer}

Simulation: stochastic vs. deterministic simulation. Monte Carlo applied examples: more plant location (in a rectangle)[PRINT]
http://web.tecnico.ulisboa.pt/~mcasquilho/compute/or/Fx-distInRectang.php
Packaging — "Is variability (always) the enemy of Quality ?"
(http://web.tecnico.ulisboa.pt/~mcasquilho/compute/qc/Fx-3tubefill.php)

Optimization: CPLEX via OPL, Excel, and Lindo (and API's from CPLEX and Lindo for standard programming languages):
http://www-01.ibm.com/software/commerce/optimization/modeling/,
'opl' tutorial (Univ. Oslo)
http://www.lindo.com/ → Products → Lindo APIs

References

– EISELT, H. A., C.-L. SANDBLOM, 2000, "Integer programming and network models", Springer-Verlag, Berlin, Germany. XII+504 pp, ISBN 3-540-67191-9.
"Although numerous applications of integer programming are reported in the literature, surprisingly few books devote much attention to applications. Notable exceptions are Taha (1997), Williams (1978), and Rardin (1998)." (p 129)
– RARDIN, Ronald L., 1998, "Optimization in Operations Research", Prentice-Hall, New Jersey, USA (cited in Eiselt & Sandblom). 919 pp, ISBN 0-13-281925-2.
– WILLIAMS, H. Paul, 1999, "Model building in Mathematical Programming", 4.th ed. (reprinted 2001, 2002, 2003, 2003, 2005, 2005, 2006, 2007, 2008), John Wiley & Sons, Chichester, England. xiv+354 pp, ISBN 0-47199788-9.

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[1] http://www.schreyerinstitute.psu.edu/pdf/planning_a_class_session.pdf