

DM87 - Scheduling, Timetabling and Routing

Syllabus

Fall 2008

The part on scheduling and timetabling is covered in the textbook:

- Michael L. Pinedo, *Planning and Scheduling in Manufacturing and Services*. Springer Series in Operations Research and Financial Engineering, 2005.

Sections: 2.1, 2.2, 2.3, 2.4, 2.5 (14 pages);
4.1, 4.2, 4.3 (10 pages);
5.1, 5.2, 5.3, 5.4, 5.5 (21 pages);
9.1, 9.2, 9.3, 9.4, 9.5 (19 pages);
10.1, 10.2, 10.3, 10.4 (14 pages);
11.1, 11.2, 11.3, 11.4 (26 pages);
12.1, 12.2, 12.3, 12.4, 12.5, 12.6, 12.7 (22 pages).
Appendices: A, B, C, D (63 pages).

Further material on scheduling models has been made available (via Blackboard) as photocopies from the following books:

- Michael L. Pinedo. *Scheduling: Theory, Algorithms, and Systems*. Prentice Hall, second edition, 2002.
Sections 3.1, 3.2, 3.3, 4.5, 5.2 (only cursory), 6.1 (16+9+11+5 pages).
- Peter Brucker and Sigrid Knust (2006). *Complex Scheduling*, Series: GOR-Publications, Springer-Verlag, Germany.
Section: 3.4 (12 pages);
Sections: 4.2 through page 197, 4.4 (10 pages).
- Congram, Richard K., Potts, Chris N., van de Velde, Steef L. *An Iterated Dynasearch Algorithm for the Single-Machine Total Weighted Tardiness Scheduling Problem*. *INFORMS Journal on Computing*, 2002, 14(1), p52.
Section 3 (5 pages)

The part on vehicle routing is covered in:

- P. Toth, D. Vigo, eds. *The Vehicle Routing Problem*, SIAM Monographs on Discrete Mathematics and Applications, Philadelphia, 2002.
Chapters: 1, 5 and 6 (42 pages)

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- M. M. Solomon. Algorithms for the vehicle routing and scheduling problems with time window constraints. *Operations Research*, 35(2):254-266, 1987 (first 6 pages)
 - G.A.P. Kindervater, M.W.P. Savelsbergh (1997). Vehicle Routing: Handling Edge Exchanges. E.H.L. Aarts, J.K. Lenstra (eds.). *Local Search in Combinatorial Optimization*, Wiley, Chichester, 337-360. (first 15 pages)
 - David Pisinger, Stefan Ropke, A general heuristic for vehicle routing problems *Computers & Operations Research*, Volume 34, Issue 8, August 2007, Pages 2403-2435. (32 pages)

In total 352 pages.