Institut for Matematik & Datalogi
Syddansk Universitet

February 7, 2008
JBJ

**DM201: Graph algorithms with applications — Weekly note 3**

**Handout material in week 6:** Chapter 13 of Korte and Vygen, Combinatorial Optimization, Springer Verlag, 2000.

**Stuff covered in week 6:**

- Longest paths in acyclic digraphs with an application to project scheduling. (J) pages 72-76.
- Hamiltonian paths and cycles in semicomplete multipartite digraphs (we focus on extended semicomplete and semicomplete bipartite digraphs. (BG) pages 246-248, 250-253.
- Matroids and independence systems. (J) pages 127-136 (top), 137 (bottom) -143.

**Exercises for February 12, 2008**

- (J) Excercises 5.2.4, 5.2.5 page 131.
- read and understand the proof of Theorem 5.2.15 page 133-134 so that you may present the main ideas.
- read and understand the proof of Theorem 5.4.3 page 139 so that you may present the main ideas.
- read and understand the proof of Theorem 5.4.4 page 140 so that you may present the main ideas.
- Example 5.4.9 and Exercise 5.4.10 page 142.
- Consider the nine examples on page 280-281 in Korte and Vygen and give examples for those that are not matroids as well as argue for those that are.

**Lecture, February 14, 2008:** Matroid intersection and matroid union. Korte and Vygen sections 13.5-13.6