

Finish before the final exam

Do not turn this homework in. It is only to help you prepare for the final exam.

1. Suppose we are to make a schedule for the jobs $J := \{5, 6, 7, 8, 9, 10, 11\}$ on the machines $M := \{1, 2, 3, 4\}$. As in lecture and in section 8.3 of the Gärtner and Matouek book, let $\text{LPR}(6)$ be the linear program relaxation of the machine scheduling integer program with the additional condition that if job j takes longer than 6 units to complete on a machine i , then job j cannot be scheduled on machine i . Suppose that (t^*, x^*) is an optimal basic feasible solution of $\text{LPR}(6)$ and $t^* = 8$. Also, suppose that the non-zero entries of x^* are $x_{1,5}^*, x_{1,7}^*, x_{1,11}^*, x_{2,5}^*, x_{2,6}^*, x_{2,9}^*, x_{3,10}^*, x_{3,11}^*, x_{4,5}^*, x_{4,8}^*$. Use the approximate algorithm discussed in class and in section 8.3 of the book to construct an integer schedule with makespan at most 14.