

ME 575
HW #7 Due Apr 4, 11:50 p.m.
SQP and IP Algorithms

1. (30 pts) Do the next two iterations of the SQP example problem in the notes (Chap. 8 Section 8.3.8, starting on page 12), picking up where the example leaves off, i.e. do Iterations 5 and 6, starting from $\mathbf{x}^T = [0.2533, -0.1583]$ as given on page 19. If you have to cut the step back because the penalty function increases, cut it back by 0.5.

Show all calculations. Sketch the resulting steps on Fig. 8.8 taken from the notes.
Comment on the path of the algorithm.

2. (20 pts) Do the third iteration of the IP example problem in the notes (Chap. 8, Section 8.4.4, starting on page 26), picking up where the example leaves off, i.e. do Iteration 3, starting from $\mathbf{x}^T = [-0.592, -1.162]$ as given on page 28. If you have to cut the step back because the merit function increases, cut it back by 0.5.

Show all calculations. Sketch the resulting step on Fig. 8.10 taken from the notes.
Comment on the path of the algorithm.