0. Lawn King Case: Examine the facts of the case and decide on one or two different strategies for approaching the problem. Justify your approach(es) using quick-and-dirty but logical analysis, and compute an estimate of the annual cost of your strategy (say within 5%). You may assume that the current inventory imbalances can be corrected instantaneously; your problem is to find a good long-run strategy that could be repeated year after year, if demand remains similar in the future.

Some possible (although not necessarily good) strategies are:

(a) Level production all year.
(b) Use inventory accumulation to handle peak seasonal demands.
(c) Use overtime to handle peak seasonal demands.
(d) Use a second shift during part of the year.
(e) A combination of, or a variation of, (b), (c) or (d).

Prepare a short (2-4 page) write-up. Your write-up should include a statement and justification of your assumptions, the rationale for your solution strategy, and an explanation of your numerical results. (Note: It is more important to design a good strategy than it is to carefully optimize a poor one. Spend some time thinking before you do any number crunching.) Spreadsheets containing much of the data will be posted on the course web site by about October 8.

1. Consider the data in Problem 24, page 72 of Nahmias. Do part (b) using $\alpha = 0.3$ and compute associated tracking signal values. Suppose a demand of 15 is observed in the 9th period and a demand of 26 is observed in the 10th period. Would the tracking signal be out of control? What value of $\alpha$ would you select for this set of data and why?

2. Consider the scenario described in Problem 32 on page 148 of Nahmias.
   (a) Formulate a linear program for this problem.
   (b) Explain what you would expect a good solution to look like. Would there be a lot of hiring and firing? A lot of inventory? Provide numerical support for your answer.

3. Using the data in Problem 6, page 357 of Nahmias, find the planned order releases for components A, B, and C assuming that a lot-for-lot policy is used.

4. Problem 17 page 363 of Nahmias: Solve part (b). Also find the optimal production schedule. Compare the costs of the two solutions.

Warning: B’s Wax Candle Company Case: Meet with your team to plan a strategy (i.e., a systematic method) for solving the problem faced by the company. We will play a competitive game (with prizes) in class on Thursday, October 25.