

DETERMINING OPTIMAL PRODUCTION-INVENTORY CONTROL POLICIES FOR
AN INVENTORY SYSTEM WITH PARTIAL BACKLOGGING AND INCREASING
PRODUCTION RATE

abstract

This paper evaluates a production-inventory control system with partial backlogging and incremental increasing production rate. The paper builds upon Mak(1986) where the optimal policies for an production-inventory system with partial backlogging is derived. This paper adds an increase in the production rate after a specific time. This increase in the production rate can be caused by, for example, a warm-up period at the start of production or a learning by doing effect that increases the efficiency of the process. By the use of simulation the optimal policies that minimize the total cost will be derived. The paper will show the effect of the production rate increase on the optimal policies and compare the results with Mak(1986). Furthermore, it will be evaluated what the effect is of change other parameters(e.g. portion of demand backlogged, demand rate, total demand during stockout, etc.) on the optimal policies when there is a production rate increase. These (provisional) results will be presented during the presentation in the next tutorial.