MATHEMATICAL ECONOMIC PRODUCTION QUANTITY (EPQ) MODELS WITH HOLDING COST, UTILIZATION OF REUSABLE MATERIALS AND SCREENING PROCESS

ABSTRACT

This final project discussed the mathematical EPQ models with holding cost to determine the optimal production quantity. There are three different cases in this final project, i.e. classical mathematical EPQ models with holding cost, mathematical EPQ models with holding cost and reusable materials, and mathematical EPQ models with holding cost and screening process. Numerical simulations are given to interpret the models. Further sensitivity analysis was also conducted to determine the effect of reusable rate and the damage items rate parameters. Based on the analysis of sensitivity, it is known that the greater rate of reusable then greater the quantity of optimum production, while the total cost of the inventory is getting smaller.

Keywords: EPQ models, inventory, holding cost, reusable, and screening.