

# Imperfect Production Systems With Imperfect Preventive Maintenance, Inflation, And Time Value Of Money

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## Summary

A model that integrates the issues of production, quality, maintenance, inspection, inflation, and time value of money is proposed in this paper. It is assumed that the production system starts in the in-control state producing items of high or perfect quality. However, the process may deteriorate with time and shifts at a random point in time to an out-of-control state and begins to produce non-conforming items. The elapsed time for the process to shift to the out-of-control state is assumed to follow a general distribution. Imperfect preventive maintenance, restoration, and inspection errors are taken into account. Also, inflation, time value of money, and shortage are considered in the proposed model. Numerical examples are presented to illustrate important aspects of the integrated model.

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