

Consideration of Uncertainty in Engineering

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Abstract : Engineers need computational methods which could provide solutions less sensitive to the environmental effects, so the techniques should be used which take the uncertainty to account to control and minimize the risk associated with design and operation. In order to consider uncertainty in engineering problem, the optimization problem should be solved for a suitable range of the each uncertain input variable instead of just one estimated point. Using deterministic optimization problem, a large computational burden is required to consider every possible and probable combination of uncertain input variables. Several methods have been reported in the literature to deal with problems under uncertainty. In this paper, different methods presented and analyzed.

Keywords : uncertainty, Monte Carlo simulated, stochastic programming, scenario method

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