Reliability Analysis, Safety Assessment and Optimization: Methods and Applications in Energy Systems and Other Applications
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DESCRIPTION

This book is a comprehensive overview of the recently developed methods for assessing and optimizing system reliability and safety. It consists of two main parts, for assessment and optimization methods, respectively. The former covers multi-state system modelling and reliability evaluation, Markov processes, Monte Carlo simulation and uncertainty treatments under poor knowledge. The reviewed methods range from piecewise-deterministic Markov process to belief functions. The latter covers mathematical programs, evolutionary algorithms, multi-objective optimization and optimization under uncertainty. The reviewed methods range from non-dominated sorting genetic algorithm to robust optimization. This book also includes the applications of the assessment and optimization method on real world cases, particularly for the reliability and safety of renewable energy systems. From this point of view, the book bridges the gap between theoretical development and engineering practice.

SERIES

Quality and Reliability Engineering Series