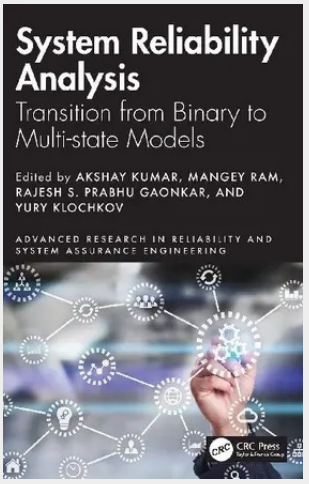
Kumar / Ram / Gaonkar

System Reliability Analysis

Transition from Binary to Multi-state Models



The text covers both basic and advanced techniques based on state performance systems and binary systems. The chapters will highlight reliability prediction, series-parallel, and complex modeling. It presents a dynamic reliability analysis of safety-critical systems using Petri nets, and dynamic resource allocation modeling of software with patching. The text illustrates a semi-Markov analysis of systems with a Weibull interface. This book: - discusses in a comprehensive manner the reliability-centered maintenance modeling of electric vehicle systems; - covers the reliability modeling of multi-state systems under the product development stage, and the reliability assessment of a multi-state degraded system; - examines the role of nature-inspired techniques in the reliability optimization of systems; - explores the practical challenges and solutions for RAMS management of train control systems; and - showcases the methodology for the assessment of multi-state system reliability of traction electric drives, including overload modes. It is primarily written for graduate students and academic researchers in the fields of industrial engineering, systems engineering, manufacturing engineering, production engineering, mechanical engineering, and mathematics.

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