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Nota di contenuto	Fault Trees; Table of Contents; Introduction; Chapter 1 Single-Component Systems; 1.1 Distribution of failure and reliability; 1.1.1 Function of distribution and density of failure; 1.1.2 Survival function: reliability; 1.1.3 Hazard rate; 1.1.4 Maintainability; 1.1.5 Mean times; 1.1.6 Mean residual lifetime; 1.1.7 Fundamental relationships; 1.1.8 Some probability distributions; 1.2 Availability of the repairable systems; 1.2.1 Instantaneous availability; 1.2.2 Asymptotic availability; 1.2.3 Mean availability; 1.2.4 Asymptotic mean availability; 1.3 Reliability in discrete time 1.3.1 Discrete distributions1.3.2 Reliability; 1.4 Reliability and maintenance; 1.4.1 Periodic test: repair time is negligible; 1.4.2 Periodic test: repair time is not negligible; 1.4.3 Mean duration of a hidden failure; 1.5 Reliability data; Chapter 2 Multi-Component Systems; 2.1 Structure function; 2.2 Modules and modular decomposition; 2.3 Elementary structure systems; 2.3.1 Series system; 2.3.2 Parallel system; 2.3.3 System k-out-of-n; 2.3.4 Parallel-series system; 2.3.5 Series-parallel system; 2.4 Systems with complex

structure; 2.5 Probabilistic study of the systems; 2.5.1 Introduction
 2.5.2 Inclusion-exclusion method 2.5.3 Disjoint products; 2.5.4
 Factorization; 2.5.5 Reliability bounds; Chapter 3 Construction of Fault
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 construction; 3.3.1 Preliminary analysis; 3.3.2 Specifications; 3.3.3
 Construction; 3.4 Example of construction; 3.4.1 Preliminary analysis;
 3.4.2 Specifications; 3.4.3 Construction; 3.5 Automatic construction;
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 4.2.3 Ascending methods 4.3 Reduction; 4.4 Other algorithms for
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 5.7.2 Method of Hughes [HUG 87]; 5.7.3 Schneeweiss method [SCH 87];
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 Introduction; 6.2.2 Structural importance factors; 6.2.3 Probabilistic
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 6.2.4 Importance factors over the uncertainty

Sommario/riassunto

Fault tree analysis is an important technique in determining the safety and dependability of complex systems. Fault trees are used as a major tool in the study of system safety as well as in reliability and availability studies. The basic methods - construction, logical analysis, probability evaluation and influence study - are described in this book. The following extensions of fault trees, non-coherent fault trees, fault trees with delay and multi-performance fault trees, are also explained. Traditional algorithms for fault tree analysis are presented, as well as more recent algorithms ba