

1. Record Nr.	UNINA9910956109203321
Autore	Billinton Roy
Titolo	Reliability evaluation of engineering systems : concepts and techniques // Roy Billinton and Ronald N. Allan
Pubbl/distr/stampa	New York, NY : , : Springer Science+Business Media, LLC, , 1992
ISBN	9781489906854 1-4899-0685-1
Edizione	[Second edition]
Descrizione fisica	1 online resource (XVI, 453 pages)
Disciplina	621.3815
Soggetti	Electronic circuits Electrical engineering Electronic Circuits and Systems Electrical and Electronic Engineering Fiabilitat (Enginyeria) - Mètodes estadístics Markov, Processos de Probabilitats Laplace, Transformació de
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	1 Introduction -- 2 Basic probability theory -- 3 Application of the binomial distribution -- 4 Network modelling and evaluation of simple systems -- 5 Network modelling and evaluation of complex systems -- 6 Probability distributions in reliability evaluation -- 7 System reliability evaluation using probability distributions -- 8 Discrete Markov chains -- 9 Continuous Markov processes -- 10 Frequency and duration techniques -- 11 Approximate system reliability evaluation -- 12 Systems with non-exponential distributions -- 13 Monte Carlo simulation -- 14 Epilogue -- Appendices -- Appendix 1—Rules of Boolean algebra -- Appendix 2—Probability distributions -- A2.1 The normal distribution function -- A2.2 Ordinate heights of the normal distribution -- A2.4 Kolmogorov-Smirnov critical values -- Appendix 3—Elementary matrix algebra -- A3.1 Concepts of matrices -- A3.2 Square matrix -- A3.3 Column matrix (or vector) -- A3.4 Row matrix (or vector) -- A3.5 Transposed matrix -- A3.6 Diagonal matrix -- A3.7

Identity (or unit) matrix -- A3.8 Symmetric matrix -- A3.9 Determinant of a matrix -- A3.10 Co-factors -- A3.11 Evaluation of determinants -- A3.12 Addition of matrices -- A3.13 Subtraction of matrices -- A3.14 Multiplication of matrices -- A3.15 Multiplication by a constant -- A3.16 Inverse of a matrix -- A3.17 Solution of simultaneous equations -- A3.18 Cramer's rule for solving simultaneous equations -- Appendix 4—Differential equations and Laplace transforms -- A4.1 Differential equations -- A4.2 Laplace transforms -- A4.3 Solving differential equations using Laplace transforms -- Appendix 5—Confidence levels and limits -- A5.1 Introduction -- A5.2 Unavailability at selected confidence levels -- A5.3 Failure rate at selected confidence levels -- A5.4 Conclusions -- Problems -- References -- Solutions.

Sommario/riassunto

In response to new developments in the field, practical teaching experience, and readers' suggestions, the authors of the warmly received Reliability Evaluation of Engineering Systems have updated and extended the work-providing extended coverage of fault trees and a more complete examination of probability distribution, among other things-without disturbing the original's concept, structure, or style.
