

1. Record Nr.	UNINA9910139583603321
Autore	Lee John C. <1941->
Titolo	Risk and safety analysis of nuclear systems // John C. Lee, Norman J. McCormick
Pubbl/distr/stampa	Hoboken, N.J., : Wiley, 2011
ISBN	1-283-25614-2 9786613256140 1-118-04345-6 1-118-04346-4 1-118-04344-8
Edizione	[1st ed.]
Descrizione fisica	1 online resource (502 p.)
Classificazione	TEC009010
Altri autori (Persone)	McCormickNorman J
Disciplina	621.48/35
Soggetti	Nuclear facilities - Security measures Nuclear engineering - Safety measures Nuclear engineering - Risk assessment
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Risk and Safety Analysis of Nuclear Systems; CONTENTS; Preface; Permissions and Copyrights; List of Tables; List of Figures; 1 Risk and Safety of Engineered Systems; 2 Probabilities of Events; 3 Reliability Data; 4 Reliability of Multiple-Component Systems; 5 Availability and Reliability of Systems with Repair; 6 Probabilistic Risk Assessment; 7 Computer Programs for Probabilistic Risk Assessment; 8 Nuclear Power Plant Safety Analysis; 9 Major Nuclear Power Plant Accidents and Incidents; 10 PRA Studies of Nuclear Power Plants; 11 Passive Safety and Advanced Nuclear Energy Systems 12 Risk-Informed Regulations and Reliability-Centered Maintenance 13 Dynamic Event Tree Analysis; Appendix A: Reactor Radiological Sources; Appendix B: Some Special Mathematical Functions; Appendix C: Some Failure Rate Data; Appendix D: Linear Kalman Filter Algorithm; Answers to Selected Exercises; Index
Sommario/riassunto	"The book has been developed in conjunction with NERS 462, a course offered every year to seniors and graduate students in the University of Michigan NERS program. The first half of the book covers the principles

of risk analysis, the techniques used to develop and update a reliability data base, the reliability of multi-component systems, Markov methods used to analyze the unavailability of systems with repairs, fault trees and event trees used in probabilistic risk assessments (PRAs), and failure modes of systems. All of this material is general enough that it could be used in non-nuclear applications, although there is an emphasis placed on the analysis of nuclear systems. The second half of the book covers the safety analysis of nuclear energy systems, an analysis of major accidents and incidents that occurred in commercial nuclear plants, applications of PRA techniques to the safety analysis of nuclear power plants (focusing on a major PRA study for five nuclear power plants), practical PRA examples, and emerging techniques in the structure of dynamic event trees and fault trees that can provide a more realistic representation of complex sequences of events. The book concludes with a discussion on passive safety features of advanced nuclear energy systems under development and approaches taken for risk-informed regulations for nuclear plants"--
