

1. Record Nr.	UNINA9910299924603321
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Titolo	Risk-Based Engineering : An Integrated Approach to Complex Systems—Special Reference to Nuclear Plants // by Prabhakar V. Varde, Michael G. Pecht
Pubbl/distr/stampa	Singapore : , : Springer Singapore : , : Imprint : Springer, , 2018
ISBN	981-13-0090-9 978-981-13-0090-5
Edizione	[1st ed. 2018.]
Descrizione fisica	1 online resource (XXII, 568 p. 141 illus., 59 illus. in color.)
Collana	Springer Series in Reliability Engineering, , 1614-7839
Disciplina	658.155
Soggetti	Quality control Reliability Industrial safety Mathematical models System theory Nuclear energy Manufactures Quality Control, Reliability, Safety and Risk Mathematical Modeling and Industrial Mathematics Complex Systems Nuclear Energy Manufacturing, Machines, Tools, Processes
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Preface -- Chapter 1: Introduction -- Chapter 2: Risk Characterization -- Chapter 3: Probabilistic Approach to Reliability Engineering -- Chapter 4: System Reliability Modelling -- Chapter 5: Life Prediction -- Chapter 6: Probabilistic Risk Assessment -- Chapter 7: Risk-based Design -- Chapter 8: Fatigue and Fracture Risk Assessment- A Probabilistic Framework -- Chapter 9: Uncertainty Modeling -- Chapter 10: Human Reliability Analysis -- Chapter 11: Digital system reliability -- Chapter 12: Physics of Failure -- Chapter 13: Prognostics and Health Management -- Chapter 14: Risk Informed Decisions -- Chapter 15:

Sommario/riassunto

The book comprehensively covers the various aspects of risk modeling and analysis in technological contexts. It pursues a systems approach to modeling risk and reliability concerns in engineering, and covers the key concepts of risk analysis and mathematical tools used to assess and account for risk in engineering problems. The relevance of incorporating risk-based structures in design and operations is also stressed, with special emphasis on the human factor and behavioral risks. The book uses the nuclear plant, an extremely complex and high-precision engineering environment, as an example to develop the concepts discussed. The core mechanical, electronic and physical aspects of such a complex system offer an excellent platform for analyzing and creating risk-based models. The book also provides real-time case studies in a separate section to demonstrate the use of this approach. There are many limitations when it comes to applications of risk-based approaches to engineering problems. The book is structured and written in a way that addresses these key gap areas to help optimize the overall methodology. This book serves as a textbook for graduate and advanced undergraduate courses on risk and reliability in engineering. It can also be used outside the classroom for professional development courses aimed at practicing engineers or as an introduction to risk-based engineering for professionals, researchers, and students interested in the field.
