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**Offshore Structural Engineering**-Srinivasan Chandrasekaran 2017-12-19 Successfully estimate risk and reliability, and produce innovative, yet reliable designs using the approaches outlined in Offshore Structural Engineering: Reliability and Risk Assessment. A hands-on guide for practicing professionals, this
book covers the reliability of offshore structures with an emphasis on the safety and reliability of offshore facilities during analysis, design, inspection, and planning. Since risk assessment and reliability estimates are often based on probability, the author utilizes concepts of probability and statistical analysis to address the risks and uncertainties involved in design. He explains the concepts with clear illustrations and tutorials, provides a chapter on probability theory, and covers various stages of the process that include data collection, analysis, design and construction, and commissioning. In addition, the author discusses advances in geometric structural forms for deep-water oil exploration, the rational treatment of uncertainties in structural engineering, and the safety and serviceability of civil engineering and other offshore structures. An invaluable guide to innovative and reliable structural design, this book: Defines the structural reliability theory Explains the reliability analysis of structures Examines the reliability of offshore structures Describes the probabilistic distribution for important loading variables Includes methods of reliability analysis Addresses risk assessment and more Offshore Structural Engineering: Reliability and Risk Assessment provides an in-depth analysis of risk analysis and assessment and highlights important aspects of offshore structural reliability. The book serves as a practical reference to engineers and students involved in naval architecture, ocean engineering, civil/structural, and petroleum engineering.

Risk and Reliability in Structural Engineering-Naiwei Lu 2019-05-24 The primary purpose of this book is to introduce risk and reliability concept into structural design. A structure should be designed taking into account safety, reliability, and economy. Reliability is the probability of successful function, and risk is the potential for unwanted negative consequence of an event. In structural engineering, risk analysis involves the investigation of the probability of rare events. Risk analyses are typically made on
the basis of information, which is subject to uncertainty. These uncertainties may be divided into inherent or natural variability. The objective of a structural design is the assurance of successful performance over the useful life of structures or engineering systems. The primary purpose of this book is to introduce risk and reliability concept into structural design. It will cover and review reliability theory and risk analysis to solve structural engineering problems. The book was formed from the easy to the difficult and complicated concepts. Content was written from the basic concepts of uncertainties, structural safety analysis, structural reliability under repeated load, and fatigue reliability. Based on the introduction of failure modes and bounds theory, structural system reliability theory is subsequently discussed. Numerical formulation and examples are provided to enhance the study efficiency of students, engineers, and researchers. This book is suitable for adoption as a textbook or a reference book in a structural reliability analysis course. Furthermore, this book also provides a theoretical foundation for better understanding of the structural safety assessment.

Safety, Reliability and Risk Analysis-R.D.J.M. Steenbergen 2013-09-18 During the last decade there have been increasing societal concerns over sustainable developments focusing on the conservation of the environment, the welfare and safety of the individual and at the same time the optimal allocation of available natural and financial resources. As a consequence the methods of risk and reliability analysis are becomi

Structural Reliability and Risk Analysis of Elevated Tanks-Hazem I. Mobarek 1992

Increasing demand on improving the resiliency of modern structures and infrastructure requires ever more critical and complex designs. Therefore, the need for accurate and efficient approaches to assess uncertainties in loads, geometry, material properties, manufacturing processes, and operational environments has increased significantly. Reliability-based techniques help develop more accurate initial guidance for robust design and help to identify the sources of significant uncertainty in structural systems. Reliability-Based Analysis and Design of Structures and Infrastructure presents an overview of the methods of classical reliability analysis and design most associated with structural reliability. It also introduces more modern methods and advancements, and emphasizes the most useful methods and techniques used in reliability and risk studies, while elaborating their practical applications and limitations rather than detailed derivations.

Features: Provides a practical and comprehensive overview of reliability and risk analysis and design techniques. Introduces resilient and smart structures/infrastructure that will lead to more reliable and sustainable societies. Considers loss elimination, risk management and life-cycle asset management as related to infrastructure projects. Introduces probability theory, statistical methods, and reliability analysis methods. Reliability-Based Analysis and Design of Structures and Infrastructure is suitable for researchers and practicing engineers, as well as upper-level students taking related courses in structural reliability analysis and design.

Structural Reliability Analysis and Prediction - Robert E. Melchers 2018-04-02
Structural Reliability Analysis and Prediction, Third Edition is a textbook which addresses the important issue of predicting the safety of structures at the design stage and also the safety of existing, perhaps deteriorating structures.
Attention is focused on the development and definition of limit states such as serviceability and ultimate strength, the definition of failure and the various models which might be used to describe strength and loading. This book emphasises concepts and applications, built up from basic principles and avoids undue mathematical rigour. It presents an accessible and unified account of the theory and techniques for the analysis of the reliability of engineering structures using probability theory. This new edition has been updated to cover new developments and applications and a new chapter is included which covers structural optimization in the context of reliability analysis. New examples and end of chapter problems are also now included.

**Risk and Reliability Analysis**-Vijay P. Singh

2007 Singh, Jain, and Tyagi present the key concepts of risk and reliability that apply to a wide array of problems in civil and environmental engineering.

**Reliability and Optimization of Structural Systems**-Daniel Straub 2010-07-28

This volume contains 28 papers by renowned international experts on the latest advances in structural reliability methods and applications, engineering risk analysis and decision making, new optimization techniques and various applications in civil engineering. Moreover, several contributions focus on the assessment and optimization of existing str

**Structural Reliability**-Yan-Gang Zhao

2021-03-29 STRUCTURAL RELIABILITY Discover a new and innovative approach to structural reliability from two authoritative and accomplished authors. The subject of structural reliability, which deals with the problems of evaluating the safety and risk posed by a wide variety of structures, has grown rapidly over the last four decades. And while the First-Order Reliability Method is principally used by most
textbooks on this subject, other approaches have identified some of the limitations of that method. In Structural Reliability: Approaches from Perspectives of Statistical Moments, accomplished engineers and authors Yan-Gang Zhao and Dr. Zhao-Hui Lu, deliver a concise and insightful exploration of an alternative and innovative approach to structural reliability. Called the Methods of Moment, the authors’ approach is based on the information of statistical moments of basic random variables and the performance function. The Methods of Moment approach facilitates structural reliability analysis and reliability-based design and can be extended to other engineering disciplines, yielding further insights into challenging problems involving randomness. Readers will also benefit from the inclusion of: A thorough introduction to the measures of structural safety, including uncertainties in structural design, deterministic measures of safety, and probabilistic measures of safety An exploration of the fundamentals of structural reliability theory, including the performance function and failure probability A practical discussion of moment evaluation for performance functions, including moment computation for both explicit and implicit performance functions A concise treatment of direct methods of moment, including the third- and fourth-moment reliability methods Perfect for professors, researchers, and graduate students in civil engineering, Structural Reliability: Approaches from Perspectives of Statistical Moments will also earn a place in the libraries of professionals and students working or studying in mechanical engineering, aerospace and aeronautics engineering, marine and offshore engineering, ship engineering, and applied mechanics.

Reliability Analysis for Structural Design—Milan Holický 2009-08-01 Reliability analysis for structural design provides an effective and consistent introduction of the theory of structural reliability. The wide involvement of the author in the development of such design standards at various levels results in his ability to introduce
advanced concepts in a clear and practical manner. The book consequently not only provides an appreciation for the way in which reliability-based partial factor limit states design procedures are formulated in design standards, but also for ways in which these principles can be applied in design practice, particularly where high demands are placed on structural performance.


**Structural Reliability and Time-Dependent Reliability** - Cao Wang

**Safety and Reliability of Industrial Products, Systems and Structures** - Carlos Guedes Soares 2010-11-29 Safety and Reliability of Industrial Products, Systems and Structures deals with risk assessment, which is a fundamental support for decisions related to the design, construction, operation and maintenance of industrial products, systems and infrastructures. Risks are influenced by design decisions, by the process of construction of systems and infrastructures.

**Structural Reliability Methods** - O. Ditlevsen 1996-06-19 This book addresses probabilistic methods for the evaluation of structural reliability, including the theoretical basis of these methods. Partial safety factor codes under current practice are briefly introduced and discussed. A probabilistic code format for obtaining a formal reliability evaluation system that catches the most essential features of the nature of the uncertainties and their interplay is then gradually developed. The concepts presented are illustrated by numerous examples throughout the text. The modular approach of the book allows the reader to navigate through the different stages of the methods.
**Applied Reliability Engineering and Risk Analysis** - Ilia B. Frenkel 2013-08-22

This complete resource on the theory and applications of reliability engineering, probabilistic models and risk analysis consolidates all the latest research, presenting the most up-to-date developments in this field. With comprehensive coverage of the theoretical and practical issues of both classic and modern topics, it also provides a unique commemoration to the centennial of the birth of Boris Gnedenko, one of the most prominent reliability scientists of the twentieth century. Key features include:

- Expert treatment of probabilistic models and statistical inference from leading scientists, researchers and practitioners in their respective reliability fields.
- Detailed coverage of multi-state system reliability, maintenance models, statistical inference in reliability, systemability, physics of failures and reliability demonstration.
- Many examples and engineering case studies to illustrate the theoretical results and their practical applications in industry.

**Advances in Safety, Reliability and Risk Management** - Christophe Berenguer 2011-08-31

Advances in Safety, Reliability and Risk Management contains the papers presented at the 20th European Safety and Reliability (ESREL 2011) annual conference in Troyes, France, in....
September 2011. The books covers a wide range of topics, including: Accident and Incident Investigation; Bayesian methods; Crisis and Emergency Management; Decision Making

**Risk and Reliability Analysis: Theory and Applications**- Paolo Gardoni 2017-02-24 This book presents a unique collection of contributions from some of the foremost scholars in the field of risk and reliability analysis. Combining the most advanced analysis techniques with practical applications, it is one of the most comprehensive and up-to-date books available on risk-based engineering. All the fundamental concepts needed to conduct risk and reliability assessments are covered in detail, providing readers with a sound understanding of the field and making the book a powerful tool for students and researchers alike. This book was prepared in honor of Professor Armen Der Kiureghian, one of the fathers of modern risk and reliability analysis.

**Structural Reliability Analysis and Seismic Risk Assessment**- 1984

**Safety, Reliability, Risk and Life-Cycle Performance of Structures and Infrastructures**- George Deodatis 2014-02-10 Safety, Reliability, Risk and Life-Cycle Performance of Structures and Infrastructures contains the plenary lectures and papers presented at the 11th International Conference on STRUCTURAL SAFETY AND RELIABILITY (ICOSSAR2013, New York, NY, USA, 16-20 June 2013), and covers major aspects of safety, reliability, risk and life-cycle performance of str

**Marine Structural Design**- Yong Bai 2015-09-18 Marine Structural Design, Second Edition, is a wide-ranging, practical guide to marine structural analysis and design, describing in detail the application of modern structural engineering principles to marine and offshore
structures. Organized in five parts, the book covers basic structural design principles, strength, fatigue and fracture, and reliability and risk assessment, providing all the knowledge needed for limit-state design and re-assessment of existing structures. Updates to this edition include new chapters on structural health monitoring and risk-based decision-making, arctic marine structural development, and the addition of new LNG ship topics, including composite materials and structures, uncertainty analysis, and green ship concepts. Provides the structural design principles, background theory, and know-how needed for marine and offshore structural design by analysis. Covers strength, fatigue and fracture, reliability, and risk assessment together in one resource, emphasizing practical considerations and applications. Updates to this edition include new chapters on structural health monitoring and risk-based decision making, and new content on arctic marine structural design.

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<td>Structural Risk Assessment of Buildings Subject to Blast Loading Using Structural Reliability Analysis</td>
<td>Brendan Michael McSweeney</td>
<td>2005</td>
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<td>Risk and Reliability in Geotechnical Engineering</td>
<td>Kok-Kwang Phoon</td>
<td>2018-10-09</td>
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Establishes Geotechnical Reliability as Fundamentally Distinct from Structural Reliability. Reliability-based design is relatively well established in structural design. Its use is less mature in geotechnical design, but there is a steady progression towards reliability-based design as seen in the inclusion of a new Annex D on "Reliability of Geotechnical Structures" in the third edition of ISO 2394. Reliability-based design can be viewed as a simplified form of risk-based design where different consequences of failure are implicitly covered by the adoption of different target reliability indices. Explicit risk management methodologies are required for large geotechnical systems where soil and loading conditions are too varied to be
conveniently slotted into a few reliability classes (typically three) and an associated simple discrete tier of target reliability indices. Provides Realistic Practical Guidance Risk and Reliability in Geotechnical Engineering makes these reliability and risk methodologies more accessible to practitioners and researchers by presenting soil statistics which are necessary inputs, by explaining how calculations can be carried out using simple tools, and by presenting illustrative or actual examples showcasing the benefits and limitations of these methodologies. With contributions from a broad international group of authors, this text: Presents probabilistic models suited for soil parameters Provides easy-to-use Excel-based methods for reliability analysis Connects reliability analysis to design codes (including LRFD and Eurocode 7) Maximizes value of information using Bayesian updating Contains efficient reliability analysis methods Accessible To a Wide Audience Risk and Reliability in Geotechnical Engineering presents all the "need-to-know" information for a non-specialist to calculate and interpret the reliability index and risk of geotechnical structures in a realistic and robust way. It suits engineers, researchers, and students who are interested in the practical outcomes of reliability and risk analyses without going into the intricacies of the underlying mathematical theories.

**Condition Assessment of Aged Structures**-J K Paik 2014-01-23 Any structural system in service is subject to age-related deterioration, leading to potential concerns regarding maintenance, health & safety, environmental and economic implications. Condition assessment of aged structures is an invaluable, single source of information on structural assessment techniques for marine and land-based structures such as ships, offshore installations, industrial plant and buildings. Topics covered include: - Current practices and standards for structural condition assessment - Fundamental mechanisms and advanced mathematical methods for predicting structural deterioration - Residual strength assessment of deteriorated structures -
Inspection and maintenance of aged structures - Reliability and risk assessment of aged structures
Professionals from a broad range of disciplines will be able to gain a better understanding of current practices and standards for structural condition assessment or health monitoring, and what future trends might be. Single source of information on structural assessment techniques for marine and land-based structures Examines the residual strength and reliability of aged structures Assesses current practices covering inspection, health monitoring and maintenance

Engineering Reliability and Risk Analysis for Water Resources Investments - Bruce R. Ellingwood 1995

Offshore Structural Engineering - Srinivasan Chandrasekaran 2017-12-19 Successfully estimate risk and reliability, and produce innovative, yet reliable designs using the approaches outlined in Offshore Structural Engineering: Reliability and Risk Assessment. A hands-on guide for practicing professionals, this book covers the reliability of offshore structures with an emphasis on the safety and reliability of offshore facilities during analysis, design, inspection, and planning. Since risk assessment and reliability estimates are often based on probability, the author utilizes concepts of probability and statistical analysis to address the risks and uncertainties involved in design. He explains the concepts with clear illustrations and tutorials, provides a chapter on probability theory, and covers various stages of the process that include data collection, analysis, design and construction, and commissioning. In addition, the author discusses advances in geometric structural forms for deep-water oil exploration, the rational treatment of uncertainties in structural engineering, and the safety and serviceability of civil engineering and other offshore structures. An invaluable guide to innovative and reliable structural design, this book: Defines the structural reliability theory Explains the reliability analysis of structures
Examines the reliability of offshore structures
Describes the probabilistic distribution for important loading variables
Includes methods of reliability analysis
Addresses risk assessment and more
Offshore Structural Engineering: Reliability and Risk Assessment provides an in-depth analysis of risk analysis and assessment and highlights important aspects of offshore structural reliability. The book serves as a practical reference to engineers and students involved in naval architecture, ocean engineering, civil/structural, and petroleum engineering.

Aspects of Structural Reliability - Michael H. Faber 2007

Reliability-based Structural Design - Seung-Kyum Choi 2006-11-15 This book provides readers with an understanding of the fundamentals and applications of structural reliability, stochastic finite element method, reliability analysis via stochastic expansion, and optimization under uncertainty. It examines the use of stochastic expansions, including polynomial chaos expansion and Karhunen-Loeve expansion for the reliability analysis of practical engineering problems.


Safety, Reliability and Risk of Structures, Infrastructures and Engineering Systems - Hitoshi Furuta 2009-09-01 Containing the papers...
of the 10th International Conference on Structural Safety and Reliability (ICOSSAR2009, Osaka, Japan), this work covers safety and reliability of structures and systems in civil, marine, mechanical, transportation, and aerospace systems. A special focus is placed on advanced technologies, analytical and computational risk analysis, probability-based design and regulations, smart systems and materials, life cycle cost analysis, damage assessment, social aspects, and commercial applications. Emerging concepts and novel applications of reliability principles in all types of structural systems and mechanical components are included. In addition to the text, all of the papers are included on a fully searchable CD-ROM.

**Systems Reliability and Risk Analysis** - E.G. Frankel 2013-03-12 Ernst G. Frankel This book has its origin in lecture notes developed over several years for use in a course in Systems Reliability for engineers concerned with the design of physical systems such as civil structures, power plants, and transport vehicles of all types. Increasing public concern with the reliability of systems for reasons of human safety, environmental protection, and acceptable investment risk limitations has resulted in an increasing interest by engineers in the formal application of reliability theory to engineering design. At the same time there is a demand for more effective approaches to the design of procedures for the operation and use of man-made systems and more meaningful assessment of the risks involved in the introduction and use of such a system poses both when operating as designed and when operating at below design performance. The purpose of the book is to provide a sound, yet practical, introduction to reliability analysis and risk assessment which can be used by professionals in engineering, planning, management, and economics to improve the design, operation, and risk assessment of systems of interest. The text should be useful for students in many disciplines and is designed for fourth-year undergraduates or first-year
graduate students. I would like to acknowledge the help of many of my graduate students who contributed to the development of this book by offering comments and criticism. Similarly I would like to thank Mrs.

Safety, Reliability and Risk Analysis—Sebastian Martorell 2008-09-10 Safety, Reliability and Risk Analysis. Theory, Methods and Applications contains the papers presented at the joint ESREL (European Safety and Reliability) and SRA-Europe (Society for Risk Analysis Europe) Conference (Valencia, Spain, 22-25 September 2008). The book covers a wide range of topics, including: Accident and Incident Investigation; Crisi

Systems Engineering in the Fourth Industrial Revolution—Ron S. Kenett 2019-12-10 An up-to-date guide for using massive amounts of data and novel technologies to design, build, and maintain better systems
engineering; the digital factory; reliability and maintainability modeling and analytics; and organizational aspects of systems engineering. This important resource: Presents new and advanced approaches, methodologies, and tools for designing, testing, deploying, and maintaining advanced complex systems. Explores effective evidence-based risk management practices. Describes an integrated approach to safety, reliability, and cyber security based on system theory. Discusses entrepreneurship as a multidisciplinary system. Emphasizes technical merits of systems engineering concepts by providing technical models. Written for systems engineers, Systems Engineering in the Fourth Industrial Revolution offers an up-to-date resource that contains the best practices and most recent research on the topic of systems engineering.

Structural Reliability Theory and Its Applications-P. Thoft-Cristensen 2012-12-06

Structural reliability theory is concerned with the rational treatment of uncertainties in structural engineering and with the methods for assessing the safety and serviceability of civil engineering and other structures. It is a subject which has grown rapidly during the last decade and has evolved from being a topic for academic research to a set of well-developed or developing methodologies with a wide range of practical applications. Uncertainties exist in most areas of civil and structural engineering and rational design decisions cannot be made without modelling them and taking them into account. Many structural engineers are shielded from having to think about such problems, at least when designing simple structures, because of the prescriptive and essentially deterministic nature of most codes of practice. This is an undesirable situation. Most loads and other structural design parameters are rarely known with certainty and should be regarded as random variables or stochastic processes, even if in design calculations they are eventually treated as deterministic. Some problems such as the analysis of load combinations cannot even be
formulated without recourse to probabilistic reasoning.

**Advances in Structural Reliability**-Advanced Seminar on Structural Reliability 1987-03-31
Proceedings of the Advanced Seminar held at the Joint Research Centre, Ispra, Italy, June 4-8, 1984

**Reliability and Maintainability of In-Service Pipelines**-Mojtaba Mahmoodian 2018-06-13
Reliability and Maintainability of In-Service Pipelines helps engineers understand the best structural analysis methods and more accurately predict the life of their pipeline assets. Expanded to cover real case studies from oil and gas, sewer and water pipes, this reference also explains inline inspection and how the practice influences reliability analysis, along with various reliability models beyond the well-known Monte Carlo method. Encompassing both numerical and analytical methods in structural reliability analysis, this book gives engineers a stronger point of reference covering both pipeline maintenance and monitoring techniques in a single resource. Provides tactics on cost-effective pipeline integrity management decisions and strategy for a variety of different pipes Presents readers with rational tools for strengthening and rehabing existing pipelines Teaches how to optimize materials selection and design parameters for designing future pipelines with a longer service life

**Safety, Reliability and Risk Analysis**-R.D.J.M. Steenbergen 2013-09-18 During the last decade there have been increasing societal concerns over sustainable developments focusing on the conservation of the environment, the welfare and safety of the individual and at the same time the optimal allocation of available natural and financial resources. As a consequence the methods of risk and reliability analysis are becoming increasingly important as decision support tools in various fields of engineering. In
this book, the risk and reliability research community looks beyond the horizon. The technology we deploy to fix today’s problems is based on research that started more than two decades ago. What we are doing today should make a difference for tomorrow. Developing innovative new knowledge and applications helps engineers to better play the important role they have for society in establishing the basis for decision making. Safety, Reliability and Risk Analysis: Beyond the Horizon contains the papers presented at the 22nd European Safety and Reliability (ESREL 2013) annual conference in Amsterdam, The Netherlands. The abstracts book (785 pages) + full paper CD-ROM (3426 pages) cover a wide range of topics for which risk analysis forms an indispensable field of knowledge to ensure sufficient safety: Uncertainty Analysis, Accident and Incident Modeling, Human Factors and Human Reliability, System Reliability, Structural Reliability, Safety in Civil Engineering, Quantitative Risk Assessment, Prognostics and System Health Management, Occupational Safety, Mathematical Methods in Reliability and Safety, and Maintenance Modeling and Applications. Applications in different industrial areas are shown: Natural Hazards, Land Transportation, Aeronautics Aerospace, Chemical and Process Industry, Critical Infrastructures, Manufacturing, Security, Nuclear Industry, Energy, Maritime Transportation, and Information Technology.

International Conference on Structural Safety and Reliability-Alfred M. Freudenthal 2014-05-17 International Conference on Structural Safety and Reliability documents the proceedings of a conference of the same name, which focuses mainly on the integration of all aspects of structural design (load-analysis, stability and strength analysis, and stress and deformation analysis) by the safety and reliability analysis of the structure of necessity. This text is divided into five sessions, reflecting the manner each topic is presented in the symposium. The general aspects of structural reliability are first presented, and then the methods of safety and
reliability analysis and the Bayesian statistical decision theory and reliability-based design are examined. This book then considers the problems regarding the extreme values of stochastic processes, as well as other statistical theories of extremes. A part in this text is devoted to the random excitation of structures. The last two parts examine the development of modern aircraft design and structure as well as special reliability problems to evaluate and apply the theories examined. This book will be valuable to engineering students and engineers interested in structural safety and reliability.

**Risk and Reliability in Marine Technology** - C. Soares Guedes 1998-01-01 Experience has shown that introducing risk analysis in the initial phases of any design often has important beneficial effects on both safety and economy. It has also become well accepted that structural design can occur on a sounder basis if the concepts of structural reliability are applied, in that they provide a consistent base to deal with uncertainties and to establish safety factors. Finally the operational cost of running installations depends very much on the maintenance policies applied and these in turn can translate their efficiency in terms of reliability of the systems that are maintained. The mathematical tools available to deal with these different types of problems are somewhat different, but they have several common features. The main one is the use of probabilistic models to predict the probability of failure or its complement reliability. This book explores the complementarity that exists among these different types of formulations, by presenting an overall view of the tools that can be used in the phase of conceptual design, of detail design and in the operational phase. Emphasis is on Marine Technology in that most of the applications presented are related either to offshore platforms or to ships. However, the applicability of the methods presented is not restricted to this field. In particular, the contributions on reliability of systems are very general and applicable to any type of system.
repairable or non-repairable. The work is broadly organised in three sections dealing with risk assessment, structural reliability and system reliability. In the first section the main methods of quantitative risk analysis are presented together with case studies that provide an illustration of how they can be applied. The section on structural reliability presents the probalistic formulations that are required for the reliability assessment of the marine structures. The last section deals with reliability of systems, a formulation that is essential for the different types of equipment existing in ship and offshore platforms. Contributions are by a group of international experts in the field.

**Reinforced Concrete Structural Reliability**
Ph.D, Mohamed Abdallah El-Reedy 2012-12-15
Structural engineers must focus on a structure's continued safety throughout its service life. Reinforced Concrete Structural Reliability covers the methods that enable engineers to keep structures reliable during all project phases, and presents a practical exploration of up-to-date techniques for predicting the lifetime of a structure. The book a