Theory Of Elastic Stability Second Edition

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Matrix Structural Analysis William McGuire 2015-01-15 Note: This purchase option should only be used by those who want a print-version of this textbook. An e-version (PDF) is available at no cost at www.mastan2.com DESCRIPTION: The aims of the first edition of Matrix Structural Analysis were to place proper emphasis on the methods of matrix structural analysis used in practice and to lay the groundwork for more advanced subject matter. This extensively revised Second Edition accounts for changes in practice that have taken place in the intervening twenty years. It incorporates advances in the science and art of analysis that are suitable for application now, and will be of increasing importance in the years ahead. It is written to meet the needs of both the present and the coming generation of structural engineers. KEY FEATURES Comprehensive coverage - As in the first edition, the book treats both elementary concepts and relativity advanced material. Nonlinear frame analysis - An introduction to nonlinear analysis is presented in four chapters: a general introduction, geometric nonlinearity, material nonlinearity, and solution of nonlinear equilibrium equations. Interactive computer graphics program - Packaged with the text is MASTAN2, a MATLAB based program that provides for graphically interactive structure definition, linear and nonlinear analysis, and display of results. Examples - The book contains approximately 150 illustrative examples in which all developments of consequence in the text are applied and discussed.
Theory of Structures Stephen Timoshenko 1965
Theory of elastic stability, 2nd ed 1961
Stability of Structures Chai H Yoo 2011-05-12 The current trend of building more streamlined structures has made stability analysis a subject of extreme importance. It is mostly a safety issue because Stability loss could result in an unimaginable catastrophe. Written by two authors with a combined 80 years of professional and academic experience, the objective of Stability of Structures: Principles and Applications is to provide engineers and architects with a firm grasp of the fundamentals and principles that are essential to performing effective stability analysts. Concise and readable, this guide presents stability analysis within the context of elementary nonlinear flexural analysis, providing a strong foundation for incorporating theory into everyday practice. The first chapter introduces the buckling of columns. It begins with the linear elastic theory and proceeds to include the effects of large deformations and inelastic behavior. In Chapter 2 various approximate methods are illustrated along with the fundamentals of energy methods. The chapter concludes by introducing several special topics, some advanced, that are useful in understanding the physical resistance mechanisms and consistent and rigorous mathematical analysis. Chapters 3 and 4 cover buckling of beam-columns. Chapter 5 presents torsion in structures in some detail, which is one of the least well understood subjects in the entire spectrum of structural mechanics. Strictly speaking, torsion itself does not belong to a topic in structural stability, but needs to be covered to some extent for a better understanding of buckling accompanied with torsional behavior. Chapters 6 and 7 consider stability of framed structures in conjunction with torsional behavior of structures. Chapters 8 to 10 consider buckling of plate elements, cylindrical shells, and general shells. Although the book is primarily devoted to analysis, rudimentary design aspects are discussed. Balanced presentation for both theory and practice Well-blended contents covering elementary to advanced topics Detailed presentation of the development
Theory and Analysis of Elastic Plates and Shells, Second Edition J. N. Reddy 2006-11-20 Because plates and shells are common structural elements in aerospace, automotive, and civil engineering structures, engineers must understand the behavior of such structures through the study of theory and analysis. Compiling this information into a single volume, Theory and Analysis of Elastic Plates and Shells, Second Edition presents a complete, up-to-date, and unified treatment of classical and shear deformation plates and shells, from the basic derivation of theories to analytical and numerical solutions. Revised and updated, this second edition incorporates new information in most chapters, along with some rearrangement of topics to improve the clarity of the overall presentation. The book presents new material on the theory and analysis of shells, featuring an additional chapter devoted to the topic. The author also includes new sections that address Castigliano's theorems, axisymmetric buckling of circular plates, the relationships between the

solutions of classical and shear deformation theories, and the nonlinear finite element analysis of plates. The book provides many illustrations of theories, formulations, and solution methods, resulting in an easy-to-understand presentation of the topics. Like the previous edition, this book remains a suitable textbook for a course on plates and shells in aerospace, civil, and mechanical engineering curricula and continues to serve as a reference for industrial and academic structural engineers and scientists.

Theory of Elasticity and Plasticity Valentin Molotnikov 2021 This book serves as a core text for university curricula in solid body mechanics and, at the same time, examines the main achievements of state of the art research in the mechanics of elastic and non-elastic materials. This latter goal of the book is achieved through rich bibliographic references, many from the authors' own work. authors. Distinct from similar texts, there are no claims in this volume to a single universal theory of plasticity. However, solutions are given to some new problems and to the construction of models useful both in pedagogic terms for students and practical terms for professional design engineers. Examples include the authors' decisions about the Brazilian test, stability of rock exposure, and pile foundations. Designed for both upper-level university students and specialists in the mechanics of deformable hard body, the material in this book serves as a source for numerous topics of course and diploma concentration.

Theory of Matrix Structural Analysis J. S. Przemieniecki 1985-01-01 This classic text begins with an overview of matrix methods and their application to the structural design of modern aircraft and aerospace vehicles. Subsequent chapters cover basic equations of elasticity, energy theorems, structural idealization, a comparison of force and displacement methods, analysis of substructures, structural synthesis, nonlinear structural analysis, and other topics. 1968 edition.

Foundations of the Nonlinear Theory of Elasticity V. V. Novozhilov 1999-01-01 This is an essential book for students and academicians alike. In addition to discussing theory, topics include the connection between stresses and strains in an isotropic elastic body, the geometry of strain, and much more. Deductions are explained in the simplest, most intuitive manner for wide accessibility. 1953 edition.

A General Theory of Elastic Stability J. M. T. Thompson 1973

Theory of Elastic Stability Stephen P. Timoshenko 2009-06-22 The best available guide to the elastic stability of large structures, this volume was co-authored by world-renowned authorities on engineering mechanics. It ranges from theoretical explanations of 2- and 3-D stress and strain to practical applications such as torsion, bending, thermal stress, and wave propagation through solids. Equally valuable as text or reference. 1961 edition.

Finite Elasticity Theory David J. Steigmann 2017-08-25 Containing case studies and examples, the book aims to cover extensive research particularly on surface stress and topics related to the variational approach to the subject, and non-standard topics such as the rigorous treatment of constraints and a full discussion of algebraic inequalities associated with realistic material behaviour, and their implications. Serving as an introduction to the basic elements of Finite Elasticity, this textbook is the cornerstone for any graduate-level on the topic, while also providing a template for a host of theories in Solid Mechanics.

Plasticity Theory Jacob Lubliner 2013-04-22 The aim of Plasticity Theory is to provide a comprehensive introduction to the contemporary state of knowledge in basic plasticity theory and to its applications. It treats several areas not commonly found between the covers of a single book: the physics of plasticity, constitutive theory, dynamic plasticity, large-deformation plasticity, and numerical methods, in addition to a representative survey of problems treated by classical methods, such as elastic-plastic problems, plane plastic flow, and limit analysis; the problem discussed come from areas of interest to mechanical, structural, and geotechnical engineers, metallurgists and others. The necessary mathematics and basic mechanics and thermodynamics are covered in an introductory chapter, making the book a self-contained text suitable for advanced undergraduates and graduate students, as well as a reference for practitioners of solid mechanics.

A Treatise on the Mathematical Theory of Elasticity Augustus Edward Hough Love 1944-01-01 The most complete single-volume treatment of classical elasticity, this text features extensive editorial apparatus, including a historical introduction. Topics include stress, strain, bending, torsion, gravitational effects, and much more. 1927 edition.

Theory and Analysis of Elastic Plates and Shells, Second Edition J. N. Reddy 1999-02-10 This text presents a complete treatment of the theory and analysis of elastic plates. It provides detailed coverage of classic and shear deformation plate theories and their solutions by analytical as well as numerical methods for bending, buckling and natural vibrations. Analytical solutions are based on the Navier and Levy solution method, and numerical solutions are based on the Rayleigh-Ritz methods and finite element method. The author address a range of topics, including basic equations of elasticity, virtual work and energy principles, cylindrical bending of plates, rectangular plates and an introduction to the finite element method with applications to plates.

Structural and Stress Analysis T.H.G. Megson 2005-02-17 Structural analysis is the corner stone of civil engineering and all students must obtain a thorough understanding of the techniques available to analyse and predict stress in any structure. The new edition of this popular textbook provides the student with a comprehensive introduction to all types of structural and stress analysis, starting from an explanation of the basic principles of statics, normal and shear force and bending moments and torsion. Building on the success of the first edition, new material on structural dynmics and finite element method has been included. Virtually no prior knowledge of structures is assumed and students requiring an accessible and comprehensive insight into stress analysis will find no better book available. Provides a comprehensive overview of the subject providing an invaluable resource to undergraduate civil engineers and others new to the subject Includes numerous worked examples and problems to aide in the learning process and develop knowledge and skills

Ideal for classroom and training course usage providing relevant pedagogy

History of Strength of Materials Stephen Timoshenko 1983-01-01 Strength of materials is that branch of engineering concerned with the deformation and disruption of solids when forces other than changes in position or equilibrium are acting upon them. The development of our understanding of the strength of materials has enabled engineers to establish the forces which can safely be imposed on structure or components, or to choose materials appropriate to the necessary dimensions of structures and components which have to withstand given loads without suffering effects deleterious to their proper functioning. This excellent historical survey of the strength of materials with many references to the theories of elasticity and structures is based on an extensive series of lectures delivered by the author at Stanford University, Palo Alto, California. Timoshenko explores the early roots of the discipline from the great monuments and pyramids of ancient Egypt through the temples, roads, and fortifications of ancient Greece and Rome. The author fixes the formal beginning of the modern science of the strength of materials with the publications of Galileo's book, "Two Sciences," and traces the rise and development as well as industrial and commercial applications of the fledgling science from the seventeenth century through the twentieth century. Timoshenko fleshes out the bare bones of mathematical theory with lucid demonstrations of important equations and brief biographies of highly influential mathematicians, including: Euler, Lagrange, Navier, Thomas Young, Saint-Venant, Franz Neumann, Maxwell, Kelvin, Rayleigh, Klein, Prandtl, and many others. These theories, equations, and biographies are further enhanced by clear discussions of the development of engineering and engineering education in Italy, France, Germany, England, and elsewhere. 245 figures.

Analysis and Design of Plated Structures N.E. Shanmugam 2021-09-29 Analysis and Design of Plated Structures: Stability, Second Edition covers the latest developments in new plate solutions and structural models for plate analysis. Completely revised and updated by its distinguished editors and international team of contributors, this edition also contains new chapters on GBT-based stability analysis and the finite strip and direct strength method (DSM). Other sections comprehensively cover bracing systems, storage tanks under wind loading, the analysis and design of light gauge steel members, applications of high strength steel members, cold-formed steel pallet racks, and the design of curved steel bridges. This is a comprehensive reference for graduate students, researchers and practicing engineers in the fields of civil, structural, aerospace, mechanical, automotive and marine engineering. Features new chapters on the stability behavior of composite plates such as laminated composite, functionally graded, and steel concrete composite plate structures Includes newly developed numerical simulation methods and new plate models Provides generalized beam theory for analyzing thin-walled structures

Stability of Structures Z. P. Ba?ant 2010 A crucial element of structural and continuum mechanics, stability theory has limitless applications in civil, mechanical, aerospace, naval and nuclear engineering. This text of unparalleled scope presents a comprehensive exposition of the principles and applications of stability analysis. It has been proven as a text for introductory courses and various advanced courses for graduate students. It is also prized as an exhaustive reference for engineers and researchers. The authors' focus on understanding of the basic principles rather than excessive detailed solutions, and their treatment of each subject proceed from simple examples to general concepts and rigorous formulations. All the results are derived using as simple mathematics as possible. Numerous examples are given and 700 exercise problems help in attaining a firm grasp of this central aspect of solid mechanics. The book is an unabridged republication of the 1991 edition by Oxford University Press and the 2003 edition by Dover, updated with 18 pages of end notes.

Theory of Elasticity Stephen Timoshenko 1982

Elasticity Adel S. Saada 2013-10-22 Elasticity: Theory and Applications reviews the theory and applications of elasticity. The book is divided into three parts. The first part is concerned with the kinematics of continuous media; the second part focuses on the analysis of stress; and the third part considers the theory of elasticity and its applications to engineering problems. This book consists of 18 chapters; the first of which deals with the kinematics of continuous media. The basic definitions and the operations of matrix algebra are presented in the next chapter, followed by a discussion on the linear transformation of points. The study of finite and linear strains gradually introduces the reader to the tensor concept. Orthogonal curvilinear coordinates are examined in detail, along with the similarities between stress and strain. The chapters that follow cover torsion; the three-dimensional theory of linear elasticity and the requirements for the solution of elasticity problems; the method of potentials; and topics related to cylinders, disks, and spheres. This book also explores straight and curved beams; the semi-infinite elastic medium and some of its related problems; energy principles and variational methods; columns and beam-columns; and the bending of thin flat plates. The final chapter is devoted to the theory of thin shells, with emphasis on geometry and the relations between strain and displacement. This text is intended to give advanced undergraduate and graduate students sound foundations on which to build advanced courses such as mathematical elasticity, plasticity, plates and shells, and those branches of mechanics that require the analysis of strain and stress.

Partial Differential Equations Walter A. Strauss 2007-12-21 Partial Differential Equations presents a balanced and comprehensive introduction to the concepts and techniques required to solve problems containing unknown functions of multiple variables. While focusing on the three most classical partial differential equations (PDEs)—the wave, heat, and Laplace equations—this detailed text also presents a broad practical perspective that merges mathematical concepts with real-world application in diverse areas including molecular structure, photon and electron interactions, radiation of electromagnetic waves, vibrations of a solid, and many more. Rigorous pedagogical tools aid in student comprehension; advanced topics are introduced frequently, with minimal technical jargon, and a wealth of exercises reinforce vital skills and invite additional self-study. Topics are presented in a logical progression, with major concepts such as wave propagation, heat and diffusion, electrostatics, and quantum mechanics placed in contexts familiar to

students of various fields in science and engineering. By understanding the properties and applications of PDEs, students will be equipped to better analyze and interpret central processes of the natural world.

Intermediate Mechanics of Materials J. R. Barber 2010-11-02 This book covers the essential topics for a second-level course in strength of materials or mechanics of materials, with an emphasis on techniques that are useful for mechanical design. Design typically involves an initial conceptual stage during which many options are considered. At this stage, quick approximate analytical methods are crucial in determining which of the initial proposals are feasible. The ideal would be to get within 30% with a few lines of calculation. The designer also needs to develop experience as to the kinds of features in the geometry or the loading that are most likely to lead to critical conditions. With this in mind, the author tries wherever possible to give a physical and even an intuitive interpretation to the problems under investigation. For example, students are encouraged to estimate the location of weak and strong bending axes and the resulting neutral axis of bending before performing calculations, and the author discusses ways of getting good accuracy with a simple one degree of freedom Rayleigh-Ritz approximation. Students are also encouraged to develop a feeling for structural deformation by performing simple experiments in their outside environment, such as estimating the radius to which an initially straight bar can be bent without producing permanent deformation, or convincing themselves of the dramatic difference between torsional and bending stiffness for a thin-walled open beam section by trying to bend and then twist a structural steel beam by hand-applied loads at one end. In choosing dimensions for mechanical components, designers will expect to be guided by criteria of minimum weight, which with elementary calculations, generally leads to a thin-walled structure as an optimal solution. This consideration motivates the emphasis on thin-walled structures, but also demands that students be introduced to the limits imposed by structural instability. Emphasis is also placed on the effect of manufacturing errors on such highly-designed structures - for example, the effect of load misalignment on a beam with a large ratio between principal stiffness and the large magnification of initial alignment or loading errors in a strut below, but not too far below the buckling load. Additional material can be found on http://extras.springer.com/ .

Tensor Analysis and Continuum Mechanics Wilhelm Flügge 2013-11-11 Through several centuries there has been a lively interaction between mathematics and mechanics. On the one side, mechanics has used mathemat ics to formulate the basic laws and to apply them to a host of problems that call for the quantitative prediction of the consequences of some action. On the other side, the needs of mechanics have stimulated the development of mathematical concepts. Differential calculus grew out of the needs of Newtonian dynamics; vector algebra was developed as a means . to describe force systems; vector analysis, to study velocity fields and force fields; and the calcul~s of variations has evolved from the energy principles of mechan ics. In recent times the theory of tensors has attracted the attention of the mechanics people. Its very name indicates its origin in the theory of elasticity. For a long time little use has been made of it in this area, but in the last decade its usefulness in the mechanics of continuous media has been widely recognized. While the undergraduate textbook literature in this country was becoming "vectorized" (lagging almost half a century behind the development in Europe), books dealing with various aspects of continuum mechanics took to tensors like fish to water. Since many authors were not sure whether their readers were sufficiently familiar with tensors~ they either added' a chapter on tensors or wrote a separate book on the subject.

Plate Stability by Boundary Element Method Abbas Elzein 2013-03-07 1. 1 Historical Background Thin plates and shells are widely used structural elements in numerous civil, mechanical, aeronautical and marine engineering design applications. Floor slabs, bridge decks, concrete pavements, sheet pile retaining walls are all, under normal lateral loading circumstances, instances of plate bending in civil engineering. The problem of elastic instability of plates occurs when load is applied in a direction parallel to the plane of the plate. The deck of a bridge subjected to a strong wind loading, the web of a girder under the action of shear forces transmitted by the flanges, the turbine blade of a machinery undergoing longitudinal temperature differentials, would all eventually buckle when the applied load, or its temperature equivalent in the last case, exceeds a certain limit, that is the buckling load. Although the plate may exhibit a considerable post-buckling strength, the buckling load is considered in many design instances, especially in aeronautical and marine engineering, as a serviceability limit because of the abrupt and substantial change in the dimensions and shape of the buckled plate. Nevertheless, the post-buckling region retains its importance either as an essential safety margin or as a stage of loading actually reached under normal loading conditions. The design engineer will therefore need rigorous tools of analysis to predict, in addition to the buckling load, the deflections and stresses at both buckling and initial post-buckling stages.

Applied Plasticity, Second Edition Jagabandhu Chakrabarty 2009-11-05 This book begins with the fundamentals of the mathematical theory of plasticity. The discussion then turns to the theory of plastic stress and its applications to structural analysis. It concludes with a wide range of topics in dynamic plasticity including wave propagation, armor penetration, and structural impact in the plastic range. In view of the rapidly growing interest in computational methods, an appendix presents the fundamentals of a finite-element analysis of metal-forming problems.

Elastic Stability of Circular Cylindrical Shells N. Yamaki 1984-02-01 The object of this book is to clarify the whole aspect of the basic problems concerning the elastic stability of of circular cylindrical shells under typical loading conditions. The book deals with buckling, postbuckling and initial postbuckling problems under one of the three fundamental loads, that is, torsion, pressure and compression. The emphases are placed on the accurate analysis and comprehensive numeral results for the buckling problem, experimental verification of the theoretical analysis for the postbuckling problem and clarification of the range of applicability of the perturbation method for the analysis of initial postbuckling

behaviors and imperfection sensitivity. The problems under typical combined loads as well as the influence of the contained liquid are also clarified.

Structural Stability of Steel Theodore V. Galambos 2008-04-18 This work on structural stability has been written primarily as a textbook to provide a clear understanding of theoretical stability behaviour. It will give readers a basic understanding of the design specifications developed by, for example, AISC, and implemented in building codes by IBC.

Stability, Bifurcation and Postcritical Behaviour of Elastic Structures M. Pignataro 2013-10-22 A comprehensive and systematic analysis of elastic structural stability is presented in this volume. Traditional engineering buckling concepts are discussed in the framework of the Liapunov theory of stability by giving an extensive review of the Koiter approach. The perturbation method for both nonlinear algebraic and differential equations is discussed and adopted as the main tool for postbuckling analysis. The formulation of the buckling problem for the most common engineering structures - rods and frames, plates, shells, and thin-walled beams, is performed and the critical load evaluated for problems of interest. In many cases the postbuckling analysis up to the second order is presented. The use of the Ritz-Galerkin and of the finite element methods is examined as a tool for approximate bifurcation analysis. The volume will provide an up-to-date introduction for non-specialists in elastic stability theory and methods, and is intended for graduate and post-graduate students and researchers interested in nonlinear structural analysis problems. Basic prerequisites are kept to a minimum, a familiarity with elementary algebra and calculus is all that is required of readers to make use of this book.

Non-Linear Theory of Elasticity A.I. Lurie 2012-12-02 This book examines in detail the Theory of Elasticity which is a branch of the mechanics of a deformable solid. Special emphasis is placed on the investigation of the process of deformation within the framework of the generally accepted model of a medium which, in this case, is an elastic body. A comprehensive list of Appendices is included providing a wealth of references for more in depth coverage. The work will provide both a stimulus for future research in this field as well as useful reference material for many years to come.

Elasticity Martin H. Sadd 2010-08-04 Although there are several books in print dealing with elasticity, many focus on specialized topics such as mathematical foundations, anisotropic materials, two-dimensional problems, thermoelasticity, non-linear theory, etc. As such they are not appropriate candidates for a general textbook. This book provides a concise and organized presentation and development of general theory of elasticity. This text is an excellent book teaching guide. Contains exercises for student engagement as well as the integration and use of MATLAB Software Provides development of common solution methodologies and a systematic review of analytical solutions useful in applications of

Non-Linear Elastic Deformations R. W. Ogden 2013-04-26 Classic in the field covers application of theory of finite elasticity to solution of boundary-value problems, analysis of mechanical properties of solid materials capable of large elastic deformations. Problems. References.

Elasticity Theory and Applications Adel S. Saada 1974 Elasticity: Theory and Applications, now in a revised and updated second edition, has long been used as a textbook by seniors and graduate students in civil, mechanical, and biomedical engineering since the first edition was published in 1974. The kinematics of continuous media and the analysis of stress are introduced through the concept of linear transformation of points and brought together to study in great detail the linear theory of elasticity as well as its application to a variety of practical problems. Elastic stability, the theory of thin plates, and the theory of thin shells are covered. Complex variables are introduced and used to solve two-dimensional and fracture-related problems. Through theory, solved examples and problems, this authoritative book helps the student acquire the foundation needed to pursue advanced studies in all branches of continuum mechanics. It also helps practitioners understand the source of many of the formulas they use in their designs.

The Mathematical Theory of Elasticity, Second Edition Richard B. Hetnarski 2010-10-18 Through its inclusion of specific applications, The Mathematical Theory of Elasticity, Second Edition continues to provide a bridge between the theory and applications of elasticity. It presents classical as well as more recent results, including those obtained by the authors and their colleagues. Revised and improved, this edition incorporates additional examples and the latest research results. New to the Second Edition Exposition of the application of Laplace transforms, the Dirac delta function, and the Heaviside function Presentation of the Cherkaev, Lurie, and Milton (CLM) stress invariance theorem that is widely used to determine the effective moduli of elastic composites The Cauchy relations in elasticity A body force analogy for the transient thermal stresses A three-part table of Laplace transforms An appendix that explores recent developments in thermoelasticity Although emphasis is placed on the problems of elastodynamics and thermoelastodynamics, the text also covers elastostatics and thermoelastostatics. It discusses the fundamentals of linear elasticity and applications, including kinematics, motion and equilibrium, constitutive relations, formulation of problems, and variational principles. It also explains how to solve various boundary value problems of one, two, and three dimensions. This professional reference includes access to a solutions manual for those wishing to adopt the book for instructional purposes.

Theory of Elastic Stability Stephen P. Timoshenko 2012-05-04 Written by world-renowned authorities on mechanics, this classic ranges from theoretical explanations of 2- and 3-D stress and strain to practical applications such as torsion, bending, and thermal stress. 1961 edition.

Deployable Structures S. Pellegrino 2014-05-04 Deployable structures can vary their shape automatically from a compact, packaged configuration to an expanded, operational configuration. The first properly engineered deployable structures were used as stabilization booms on early spacecraft. Later on, more complex structures were devised for solar arrays, communication reflectors and telescopes. In other fields there have been a variety of developments, including retractable roofs for stadia, foldable components for cars, portable structures for temporary shelters and exhibition displays. Three main themes are discussed in this book: concepts, working principles, and mechanics of deployable

structures, both in engineering and biology; in addition: theory of foldable bar structures and application to deployable tensegrieties; formulation of large-rotation analysis of deployable structures and finite-element simulation methods.

The Nonlinear Theory of Elastic Shells A. Libai 1998-02-13 A clear, thorough explanation of the nonlinear behaviour of shells, for researchers and graduate students.

A Translation of the Stability of Elastic Equilibrium Warner Tjardus Koiter 1970 A general theory of elastic stability is presented. In contrast to previous works in the field, the present analysis is augmented by an investigation of the behavior of the buckled structure in the immediate neighborhood of the bifurcation point. This investigation explains why some structures, e.g., a flat plate supported along its edges and subjected to thrust in its plane, are capable of carrying loads considerably above the buckling load, while other structures, e.g., an axially loaded cylindrical shell, collapse at loads far below the theoretical critical load.

Theory of Plates and Shells Stephen Timoshenko 2003-01-01

Probabilistic Methods in the Theory of Structures Isaac Elishakoff 1983 Well-written introduction covers probability theory from two or more random variables, reliability of such multivariable structures, theory of random function, Monte Carlo methods for problems incapable of exact solution, more.

Theory of Elastic Stability Luis A. Godoy 1999-11-01 This book gives a unified presentation of the field of stability. Buckling and post-buckling states are studied on the basis of total potential energy of structural systems. Emphasis is placed throughout the text on post-buckling analysis and behaviour. The sensitivity of buckling and post-buckling states to changes in design parameters is also discussed as well as changes due to imperfections and damage.