

students to learn challenging material through effective, efficient examples and explanations.

This compact and easy-to-read text provides a clear analysis of the principles of equilibrium of rigid bodies in statics and dynamics when they are subjected to external mechanical loads. The book also introduces the readers to the effects of force or displacements so as to give an overall picture of the behaviour of an engineering system. Divided into two parts—statics and dynamics—the book has a structured format, with a gradual development of the subject from simple concepts to advanced topics so that the beginning undergraduate is able to comprehend the subject with ease. Example problems are chosen from engineering practice and all the steps involved in the solution of a problem are explained in detail. The book also covers advanced topics such as the use of virtual work principle for finite element analysis; introduction of Castigliano's theorem for elementary indeterminate analysis; use of Lagrange's equations for obtaining equilibrium relations for multibody system; principles of gyroscopic motion and their applications; and the response of structures due to ground motion and its use in earthquake engineering. The book has plenty of exercise problems—which are arranged in a graded level of difficulty—, worked-out examples and numerous diagrams that illustrate the principles discussed. These features along with the clear exposition of principles make the text suitable for the first year undergraduate students in engineering.

Fluid mechanics, the study of how fluids behave and interact under various forces and in various applied situations—whether in the liquid or gaseous state or both—is introduced and comprehensively covered in this widely adopted text. Revised and updated by Dr. David Dowling, *Fluid Mechanics, Fifth Edition* is suitable for both a first or second course in fluid mechanics at the graduate or advanced undergraduate level. The leading advanced general text on fluid mechanics, *Fluid Mechanics, 5e* includes a free copy of the DVD "Multimedia Fluid Mechanics," second edition. With the inclusion of the DVD, students can gain additional insight about fluid flows through nearly 1,000 fluids video clips, can conduct flow simulations in any of more than 20 virtual labs and simulations, and can view dozens of other new interactive demonstrations and animations, thereby enhancing their fluid mechanics learning experience. Text has been reorganized to provide a better flow from topic to topic and to consolidate portions that belong together. Changes made to the book's pedagogy accommodate the needs of students who have completed minimal prior study of fluid mechanics. More than 200 new or revised end-of-chapter problems illustrate fluid mechanical principles and draw on phenomena that can be observed in everyday life. Includes free Multimedia Fluid Mechanics 2e DVD

Known for its accuracy, clarity, and applications, Meriam & Kraige's *Engineering Mechanics: Dynamics* has provided a solid foundation of mechanics principles for more than 50 years. Now in its new Sixth Edition, the text continues to help students develop their problem-solving skills with an extensive variety of highly interesting problems related to engineering design. In the new edition, more than 40% of the homework problems are new. There are also new sample problem and more photographs that link theory to application. To help students build necessary visualization and problem-solving skills, the text strongly emphasizes drawing free-body diagrams—the most important skill needed to solve mechanics problems.

Market_Desc: Engineers and Students of Engineering
Special Features: · Provides new problems that produce forces as functions of time and that integrate to project trajectories for particles and rigid bodies.· Presents new Statics sample problems in frames and machines, methods of joints for simple trusses, 2D moment calculations, and moments and couples.· Adopts the 'time order of occurrence' display of key equations: work-energy, conservation of energy, and impulse-momentum.· Includes new Dynamics sample problems in angular impulse and momentum, graphing the path of a particle, polar coordinates, and more.· Continues to offer comprehensive coverage of drawing free body diagrams.
About The Book: Over the past 50 years, Meriam & Kraige's *Engineering Mechanics* has established a highly respected tradition of excellence. Readers turn to this book because of its emphasis on accuracy, rigor, clarity, and applications. The new sixth edition continues this tradition while also improving the accessibility of the material. The explanations of concepts are now easier to understand and more worked examples have been incorporated throughout the pages.

The definitive text on rocket propulsion—now revised to reflect advancements in the field For sixty years, Sutton's *Rocket Propulsion Elements* has been regarded as the single most authoritative sourcebook on rocket propulsion technology. As with the previous edition, coauthored with Oscar Biblarz, the Eighth Edition of *Rocket Propulsion Elements* offers a thorough introduction to basic principles of rocket propulsion for guided missiles, space flight, or satellite flight. It describes the physical mechanisms and designs for various types of rockets' and provides an understanding of how rocket propulsion is applied to flying vehicles. Updated and strengthened throughout, the Eighth Edition explores: The fundamentals of rocket propulsion, its essential technologies, and its key design rationale The various types of rocket propulsion systems, physical phenomena, and essential relationships The latest advances in the field such as changes in materials, systems design, propellants, applications, and manufacturing technologies, with a separate new chapter devoted to turbopumps Liquid propellant rocket engines and solid propellant rocket motors, the two most prevalent of the rocket propulsion systems, with in-depth consideration of advances in hybrid rockets and electrical space propulsion Comprehensive and coherently organized, this seminal text guides readers evenhandedly through the complex factors that shape rocket propulsion, with both theory and practical design considerations. Professional engineers in the aerospace and defense industries as well as students in mechanical and aerospace engineering will find this updated classic indispensable for its scope of coverage and utility.

An introductory engineering textbook by an award-winning MIT professor that covers the history of dynamics and the dynamical analyses of mechanical, electrical, and electromechanical systems. This introductory textbook offers a distinctive blend of the modern and the historical, seeking to encourage an appreciation for the history of dynamics while also presenting a framework for future learning. The text presents engineering mechanics as a unified field, emphasizing dynamics but integrating topics from other

disciplines, including design and the humanities. The book begins with a history of mechanics, suitable for an undergraduate overview. Subsequent chapters cover such topics as three-dimensional kinematics; the direct approach, also known as vectorial mechanics or the momentum approach; the indirect approach, also called lagrangian dynamics or variational dynamics; an expansion of the momentum and lagrangian formulations to extended bodies; lumped-parameter electrical and electromagnetic devices; and equations of motion for one-dimensional continuum models. The book is noteworthy in covering both lagrangian dynamics and vibration analysis. The principles covered are relatively few and easy to articulate; the examples are rich and broad. Summary tables, often in the form of flowcharts, appear throughout. End-of-chapter problems begin at an elementary level and become increasingly difficult. Appendixes provide theoretical and mathematical support for the main text.

Flexure hinges hold several advantages over classical rotation joints, including no friction losses, no need for lubrication, no hysteresis, compactness, capacity to be utilized in small-scale applications, ease of fabrication, virtually no assembly, and no required maintenance. *Compliant Mechanisms: Design of Flexure Hinges* provides practical answers to the present and future needs of efficient design, analysis, and optimization of devices that incorporate flexure hinges. With a highly original approach the text: Discusses new and classical types of flexure hinges (single-, two- and multiple-axis) for two- and three-dimensional applications Addresses a wide range of industrial applications, including micro- and nano-scale mechanisms Quantifies flexibility, precision of rotation, sensitivity to parasitic loading, energy consumption, and stress limitations through closed-form compliance equations Offers a unitary presentation of individual flexure hinges as fully-compliant members by means of closed-form compliance (spring rates) equations Fully defines the lumped-parameter compliance, inertia and damping properties of flexure hinges Develops a finite element approach to compliant mechanisms by giving the elemental formulation of new flexure hinge line elements Incorporates more advanced topics dedicated to flexure hinges including large deformations, buckling, torsion, composite flexures, shape optimization and thermal effects *Compliant Mechanisms: Design of Flexure Hinges* provides practical answers and directions to the needs of efficiently designing, analyzing, and optimizing devices that include flexure hinges. It contains ready-to-use plots and simple equations describing several flexure types for the professional that needs quick solutions to current applications. The book also provides self-contained, easy-to-apply mathematical tools that provide sufficient guidance for real-time problem solving of further applications.

Understanding the dynamic behavior of complex engineering structures, mechanisms, and components requires more than just a basic course in dynamics, and it requires more than the ability to use computer programs to obtain numerical solutions to problems encountered in practice. *Advanced Dynamics* extends its readers knowledge from the relatively simple concepts of basic dynamics to the more abstract ideas related to virtual displacements, virtual work, generalized coordinates, and variation principles. The authors' presentation gradually introduces the abstract concepts often intimidating to students, and, while doing so, furnish numerous exercises and worked examples that ease the difficulties often experienced when trying to apply the abstract concepts to physical systems. While their emphasis is on students' understanding and intuition, the authors not only address the methods and means of formulating mathematical models of physical systems, they also discuss methods of solution, including a full chapter on numerical techniques. Designed for senior undergraduate and postgraduate students in mechanical engineering, *Advanced Dynamics* also forms a trustworthy reference for engineers and other professionals working in areas such as robotics, multibody spacecraft, altitude control, and the design of complex mechanical devices.

Known for its accuracy, clarity, and applications, Meriam & Kraige's *Engineering Mechanics: Statics* has provided a solid foundation of mechanics principles for more than 50 years. Now in its new Sixth Edition, the book continues to help readers develop their problem-solving skills with an extensive variety of highly interesting problems related to engineering design. In the new edition, more than 50% of the homework problems are new. There are also many new sample problems. To help readers build necessary visualization and problem-solving skills, the book strongly emphasizes drawing free-body diagrams--the most important skill needed to solve mechanics problems.

Known for its accuracy, clarity, and dependability, Meriam, Kraige, and Bolton's *Engineering Mechanics: Statics*, 9th Edition has provided a solid foundation of mechanics principles for more than 60 years. This text continues to help students develop their problem-solving skills with an extensive variety of engaging problems related to engineering design. In addition to new homework problems, the text includes a number of helpful sample problems. To help students build necessary visualization and problem-solving skills, the text strongly emphasizes drawing free-body diagrams, one of the most important skills needed to solve mechanics problems.

Over the past 50 years, Meriam & Kraige's *Engineering Mechanics: Dynamics* has established a highly respected tradition of excellence--a tradition that emphasizes accuracy, rigor, clarity, and applications. Now in a Sixth Edition, this classic text builds on these strengths adding a comprehensive course management system, Wiley Plus, to the text, including an e-text, homework management, animations of concepts, and additional teaching and learning resources. New sample problems, new homework problems, and updates to content make the book more accessible. The Sixth Edition continues to provide a wide variety of high quality problems that are known for their accuracy, realism, applications, and variety motivating students to learn and develop their problem solving skills. To build necessary visualization and problem-solving skills, the Sixth Edition continues to offer comprehensive coverage of drawing free body diagrams-- the most important skill needed to solve mechanics problems.

In this 6th edition the tradition of accuracy, rigour and clarity is maintained while the accessibility of the material is also improved. The explanations of concepts are now easier to understand and more worked examples have been incorporated throughout the pages.

Known for its accuracy, clarity, and dependability, Meriam, Kraige, and Bolton's *Engineering Mechanics: Dynamics* 8th Edition has provided a solid foundation of mechanics principles for more than 60 years. Now in its eighth edition, the text continues to help students develop their problem-solving skills with an extensive variety of engaging problems related to engineering design. In addition to new homework problems, the text includes a number of helpful sample problems. To help students build necessary visualization and problem-solving skills, the text strongly emphasizes drawing free-body diagrams- one of the most important skills needed to solve mechanics problems.

NOTE: You are purchasing a standalone product; MasteringEngineering does not come packaged with this content. If you would like to purchase both the physical text and MasteringEngineering search for 013411700X / 9780134117003 *Engineering Mechanics: Statics & Dynamics* plus MasteringEngineering with Pearson eText -- Access Card Package, 14/e Package consists of: * 0133915425 / 9780133915426 *Engineering Mechanics: Statics & Dynamics* * 0133941299 / 9780133941296 MasteringEngineering with Pearson eText -- Standalone Access Card -- for *Engineering Mechanics: Statics & Dynamics* MasteringEngineering should only be purchased when required by an instructor. A Proven Approach to Conceptual Understanding and Problem-solving Skills *Engineering Mechanics: Statics & Dynamics* excels in providing a clear and thorough presentation of

the theory and application of engineering mechanics. Engineering Mechanics empowers students to succeed by drawing upon Professor Hibbeler's everyday classroom experience and his knowledge of how students learn. This text is shaped by the comments and suggestions of hundreds of reviewers in the teaching profession, as well as many of the author's students. The Fourteenth Edition includes new Preliminary Problems, which are intended to help students develop conceptual understanding and build problem-solving skills. The text features a large variety of problems from a broad range of engineering disciplines, stressing practical, realistic situations encountered in professional practice, and having varying levels of difficulty. Also Available with MasteringEngineering -- an online homework, tutorial, and assessment program designed to work with this text to engage students and improve results. Interactive, self-paced tutorials provide individualized coaching to help students stay on track. With a wide range of activities available, students can actively learn, understand, and retain even the most difficult concepts. The text and MasteringEngineering work together to guide students through engineering concepts with a multi-step approach to problems.

Elasticity in Engineering Mechanics has been prized by many aspiring and practicing engineers as an easy-to-navigate guide to an area of engineering science that is fundamental to aeronautical, civil, and mechanical engineering, and to other branches of engineering. With its focus not only on elasticity theory, including nano- and biomechanics, but also on concrete applications in real engineering situations, this acclaimed work is a core text in a spectrum of courses at both the undergraduate and graduate levels, and a superior reference for engineering professionals.

This volume offers a concise presentation of engineering mechanics theory and application. The material is reinforced with numerous examples to illustrate principles and imaginative problems of varying degrees of difficulty.

Computational Intelligence (CI) has emerged as a rapidly growing field over the past decade. This volume reports the exploration of CI frontiers with an emphasis on a broad spectrum of real-world applications. Such a collection of chapters has presented the state-of-the-art of CI applications in industry and will be an essential resource for professionals and researchers who wish to learn and spot the opportunities in applying CI techniques to their particular problems.

[Copyright: 0d8c33b53b7de69f39f63580d559e44e](#)