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[Consulting-specifying Engineer](#) EOLSS Publications

This book includes the volume 3 of the proceedings of the 2012 International Conference on Mechanical and Electronic Engineering(ICMEE2012), held at June 23-24,2012 in Hefei, China. The conference provided a rare opportunity to bring together worldwide researchers who are working in the fields. This volume 3 is focusing on Electronic Engineering and Electronic Communication; Electronic Engineering and Electronic Image Processing. **Thermal Engineering Studies with Excel, Mathcad and Internet** Elsevier Mechanical Engineer's Reference Book, 12th Edition is a 19-chapter text that covers the basic principles of mechanical engineering. The first chapters discuss the principles of mechanical engineering, electrical and electronics, microprocessors, instrumentation, and control. The succeeding chapters deal with the applications of computers and computer-integrated engineering systems; the design standards; and materials' properties and selection. Considerable chapters are devoted to other basic knowledge in mechanical engineering, including solid mechanics, tribology, power units and transmission, fuels and combustion, and alternative energy sources. The remaining chapters explore other engineering fields related to mechanical engineering, including nuclear, offshore, and plant engineering. These chapters also cover the topics of manufacturing methods, engineering mathematics, health and safety, and units of measurements. This book will be of great value to mechanical engineers.

[Building Software for Simulation](#) CRC Press

Statics is the first volume of a three-volume textbook on Engineering Mechanics. The authors, using a time-honoured straightforward and flexible approach, present the basic concepts and principles of mechanics in the clearest and simplest form possible to advanced undergraduate engineering students of various disciplines and different educational backgrounds. An important objective of this book is to develop problem solving skills in a systematic manner. Another aim of this volume is to provide engineering students as well as practising engineers with a solid foundation to help them bridge the gap between undergraduate studies on the one hand and advanced courses on mechanics and/or practical engineering problems on the other. The book contains numerous examples, along with their complete solutions. Emphasis is placed upon student participation in problem solving. The contents of the book correspond to the topics normally covered in courses on basic engineering mechanics at universities and colleges. Now in its second English edition, this material has been in use for two decades in Germany, and has benefited from many practical improvements and the authors' teaching experience over the years. New to this edition are the extra supplementary examples available online as well as the TM-tools necessary to work with this method.

[The South African Mechanical Engineer](#) Cambridge University Press

This book covers modern subjects of mechanical engineering such as nanomechanics and nanotechnology, mechatronics and robotics, computational mechanics, biomechanics, alternative energies, sustainability as well as all aspects related with mechanical engineering education. The chapters help enhance the understanding of both the fundamentals of mechanical engineering and its application to the solution of problems in modern industry. This book is suitable for students, both in final undergraduate mechanical engineering courses or at the graduate level. It also serves as a useful reference for academics, mechanical engineering researchers, mechanical, materials and manufacturing engineers, professionals in related with mechanical engineering.

[Thermodynamics for the Practicing Engineer](#) Springer

Entire book and illustrative examples have been edited extensively, and several chapters repositioned. * Imperial units are used instead of SI units in many of the examples and

problems, particularly those of a nonlinear nature that have strong implications for design, since the SI system has not been fully assimilated in practice.

[Engineering Differential Equations](#) Springer Nature

In this book, the reader learns the essential differences to the passenger car through the analysis divided according to assemblies. This gives him the tools to apply the detailed knowledge acquired to the design and development of competition vehicles. The course for a successful car is set in the concept phase. For this reason, it is given a lot of space and associated design-related areas such as the choice of materials, lightweight construction, design principles, reliability, etc. are discussed. When considering the vehicle as a whole, however, safety systems (rollover device, crash elements, restraining ropes), the cockpit (driver position, seat with restraint system, steering wheel, gearshift, pedal system), the frame or monocoque, the outer skin and aerodynamic devices (ventilation, aerodynamic drag, downforce) must not be omitted. The detailed, in-depth presentation makes the work just as suitable for the interested motorsport enthusiast as it is for the engineer with a practical interest in questions relating to the complete vehicle. The formula material is prepared in such a way that the book can also be used as a reference work. .

[Chemical Engineering Design](#) CRC Press

This book offers a comprehensive review of sustainability and product design, providing useful information on the relevant regulations and standards for industries to meet increasing market demands for eco-products, while reducing their impact on the environment. The examples and methods presented allow readers to gain insights into sustainable products. The authors also explain how to develop products with sustainability features by applying tools and methods for sustainable design and manufacture. These tools/methods include

- Regulations/directives related to sustainable product development
- Popular lifecycle analysis software packages
- Environmental and social lifecycle impact assessment methods
- Lifecycle inventory databases
- Eco-point and eco-accounting infrastructure
- ICT and traceability technologies for sustainable product development
- Sustainable design and manufacture
- Integrated approach for sustainable product development

A description of each sustainability tool is accompanied by easy-to-understand guidelines as well as sustainable product development methods. Five different case studies are also presented to illustrate how to apply the tools and methods into the development of real sustainable products. In view of the increasing pressure on industries to meet the, sometimes conflicting, demands of the market and environment, this book is a valuable resource for engineers and managers in manufacturing companies wishing to update their knowledge of sustainable product development. It is also suitable for researchers and consultants who are involved or interested in sustainable product development, as well as for students studying sustainable development, production, and engineering management.

[Maple](#) Butterworth-Heinemann

[Chemical Engineering Design](#), Second Edition, deals with the application of chemical engineering principles to the design of chemical processes and equipment. Revised throughout, this edition has been specifically developed for the U.S. market. It provides the latest US codes and standards, including API, ASME and ISA design codes and ANSI standards. It contains new discussions of conceptual plant design, flowsheet development, and revamp design; extended coverage of capital cost estimation, process costing, and economics; and new chapters on equipment selection, reactor design, and solids handling processes. A rigorous pedagogy assists learning, with detailed worked examples, end of chapter exercises, plus supporting data,

and Excel spreadsheet calculations, plus over 150 Patent References for downloading from the companion website. Extensive instructor resources, including 1170 lecture slides and a fully worked solutions manual are available to adopting instructors. This text is designed for chemical and biochemical engineering students (senior undergraduate year, plus appropriate for capstone design courses where taken, plus graduates) and lecturers/tutors, and professionals in industry (chemical process, biochemical, pharmaceutical, petrochemical sectors). New to this edition: - Revised organization into Part I: Process Design, and Part II: Plant Design. The broad themes of Part I are flowsheet development, economic analysis, safety and environmental impact and optimization. Part II contains chapters on equipment design and selection that can be used as supplements to a lecture course or as essential references for students or practicing engineers working on design projects. - New discussion of conceptual plant design, flowsheet development and revamp design - Significantly increased coverage of capital cost estimation, process costing and economics - New chapters on equipment selection, reactor design and solids handling processes - New sections on fermentation, adsorption, membrane separations, ion exchange and chromatography - Increased coverage of batch processing, food, pharmaceutical and biological processes - All equipment chapters in Part II revised and updated with current information - Updated throughout for latest US codes and standards, including API, ASME and ISA design codes and ANSI standards - Additional worked examples and homework problems - The most complete and up to date coverage of equipment selection - 108 realistic commercial design projects from diverse industries - A rigorous pedagogy assists learning, with detailed worked examples, end of chapter exercises, plus supporting data and Excel spreadsheet calculations plus over 150 Patent References, for downloading from the companion website - Extensive instructor resources: 1170 lecture slides plus fully worked solutions manual available to adopting instructors Rules of Thumb for Mechanical Engineers Morgan & Claypool Publishers Using the author's considerable experience of applying Mathcad to engineering problems, [Engineering with Mathcad](#) identifies the most powerful functions and features of the software and teaches how to apply these to create comprehensive engineering calculations. Many examples from a variety of engineering fields demonstrate the power and utility of Mathcad's tools, while also demonstrating how other software, such as Microsoft Excel spreadsheets, can be incorporated effectively. This simple, step-by-step approach makes this book an ideal Mathcad text for professional engineers as well as engineering and science students. A CD-ROM packaged with the book contains all the examples in the text and an evaluation version of the Mathcad software, enabling the reader to learn by doing and experiment by changing parameters.* Identifies the key Mathcad functions for creating comprehensive engineering calculations* A step-by-step approach enables easy learning for professional engineers and students alike* Includes a CD-ROM containing all the examples in the text and an evaluation version of the Mathcad software [Design Methodology for Intelligent Technical Systems](#) John Wiley & Sons [Fundamentals of Machine Component Design](#) presents a thorough introduction to the concepts and methods essential to mechanical engineering design, analysis, and application. In-depth coverage of major topics, including free body diagrams, force flow concepts, failure theories, and fatigue design, are coupled with specific applications to bearings, springs, brakes, clutches, fasteners, and more for a real-world functional body of knowledge. Critical thinking and problem-solving skills are strengthened through a graphical procedural framework, enabling the effective identification of problems and clear presentation of solutions. Solidly focused on practical applications of fundamental theory, this text

helps students develop the ability to conceptualize designs, interpret test results, and facilitate improvement. Clear presentation reinforces central ideas with multiple case studies, in-class exercises, homework problems, computer software data sets, and access to supplemental internet resources, while appendices provide extensive reference material on processing methods, joinability, failure modes, and material properties to aid student comprehension and encourage self-study.

[Applied Strength of Materials SI Units Version](#) CRC Press

This unique textbook takes the student from the initial steps in modeling a dynamic system through development of the mathematical models needed for feedback control. The generously-illustrated, student-friendly text focuses on fundamental theoretical development rather than the application of commercial software. Practical details of machine design are included to motivate the non-mathematically inclined student.

[Piping and Pipeline Calculations Manual](#) Elsevier

Table of Contents Preface How to Use This Handbook Sect. 1 Structural Steel Engineering and Design Sect. 2 Reinforced and Prestressed Concrete Engineering and Design Sect. 3 Timber Engineering Sect. 4 Soil Mechanics Sect. 5 Surveying, Route Design, and Highway Bridges Sect. 6 Fluid Mechanics, Pumps, Piping, and Hydro Power Sect. 7 Water Supply and Stormwater System Design Sect. 8 Sanitary Wastewater Treatment and Control Sect. 9 Engineering Economics Index I.

[Complete vehicle](#) Springer Science & Business Media

Enables you to easily advance from thermodynamics principles to applications Thermodynamics for the Practicing Engineer, as the title suggests, is written for all practicing engineers and anyone studying to become one. Its focus therefore is on applications of thermodynamics, addressing both technical and pragmatic problems in the field. Readers are provided a solid base in thermodynamics theory; however, the text is mostly dedicated to demonstrating how theory is applied to solve real-world problems. This text's four parts enable readers to easily gain a foundation in basic principles and then learn how to apply them in practice: Part One: Introduction. Sets forth the basic principles of thermodynamics, reviewing such topics as units and dimensions, conservation laws, gas laws, and the second law of thermodynamics. Part Two: Enthalpy Effects. Examines sensible, latent, chemical reaction, and mixing enthalpy effects. Part Three: Equilibrium Thermodynamics. Addresses both principles and calculations for phase, vapor-liquid, and chemical reaction equilibrium. Part Four: Other Topics. Reviews such important issues as economics, numerical methods, open-ended problems, environmental concerns, health and safety management, ethics, and exergy. Throughout the text, detailed illustrative examples demonstrate how all the principles, procedures, and equations are put into practice. Additional practice problems enable readers to solve real-world problems similar to the ones that they will encounter on the job. Readers will gain a solid working knowledge of thermodynamics principles and applications upon successful completion of this text. Moreover, they will be better prepared when approaching/addressing advanced material and more complex problems.

[Lessons Learned from Design & Engineering of Naval Facilities](#) SDC Publications

[Analysis of Machine Elements Using SOLIDWORKS Simulation 2022](#) is written primarily for first-time SOLIDWORKS Simulation 2022 users who wish to understand finite element analysis capabilities applicable to stress analysis of mechanical elements. The focus of examples is on problems commonly found in introductory, undergraduate, Design of Machine Elements or similarly named courses. In order to be compatible with most machine design textbooks, this text begins with problems that can be solved with a basic understanding of mechanics of materials. Problem types quickly migrate to include states of stress found in more specialized situations common to a design of mechanical elements course. Paralleling this progression of problem types, each chapter introduces new software concepts and capabilities. Many examples are accompanied by problem solutions based on use of classical equations for stress determination. Unlike many step-by-step user guides that only list a succession of steps, which if followed correctly lead to successful solution of a problem, this text attempts to provide insight into why each step is performed. This approach amplifies two fundamental tenets of this text. The first is that a better understanding of course topics related to stress determination is realized when classical methods and finite element solutions are considered together. The second tenet is that finite element solutions should always be verified by checking, whether by classical stress equations or experimentation. Each chapter begins with a list of learning objectives related to specific capabilities of the SOLIDWORKS Simulation program introduced in that chapter. Most software capabilities are repeated in subsequent examples so that users gain familiarity with their purpose and are capable of using them in future problems. All end-of-chapter problems are accompanied by evaluation "check sheets" to facilitate grading assignments.

[Modern Robotics](#) Springer Science & Business Media

Save time with this collection of straightforward, common-sense techniques that provide quick, accurate solutions to your engineering problems. Rules of Thumb for Mechanical Engineers assembles hundreds of shortcuts, calculations, practical "how-to" methods, and concise background reviews into one convenient volume. Whether you're concerned with design, selection, or performance, you'll find fast, accurate answers here - all without wading through pages of theory. Experts from all engineering disciplines have packed this book's sixteen chapters with design criteria and practical tips. You'll find easy-to-read descriptions on fluids, heat transfer, thermodynamics, seals, pumps, and compressors, drivers, gears, and bearings, as well as piping and pressure vessels. Also covers tribology, vibrations, materials, stress and fatigue, instrumentation, and engineering economics.* Save time with this collection of straightforward, common-sense techniques that provide quick, accurate solutions to your engineering problems. * Hundreds of shortcuts, calculations and practical "how-to" methods in one convenient volume. * Fast, accurate answers to design, selection, or performance issues.

[Applied Strength of Materials](#) Butterworth-Heinemann

[Piping and Pipeline Calculations Manual, Second Edition](#) provides engineers and designers with a quick reference guide to calculations, codes, and standards applicable to piping systems. The book considers in one handy reference the multitude of pipes, flanges, supports, gaskets, bolts, valves, strainers, flexibles, and expansion joints that make up these often complex systems. It uses hundreds of calculations and examples based on the author's 40 years of experiences as both an engineer and instructor. Each example demonstrates how the code and standard has been correctly and incorrectly applied. Aside from advising on the intent of codes and standards, the book provides advice on compliance. Readers will come away with a clear understanding of how piping systems fail and what the code requires the designer, manufacturer, fabricator, supplier, erector, examiner, inspector, and owner to do to prevent such failures. The book enhances participants' understanding and application of the spirit of the code or standard and form a plan for compliance. The book covers American Water Works Association standards where they are applicable.

[Proceedings of the ASME Fluids Engineering Division Summer Meeting](#) Springer

Joining techniques such as welding, brazing, riveting and screwing are used by industry all over the world on a daily basis. A further method of joining has also proven to be highly successful: adhesive bonding. Adhesive bonding technology has an extremely broad range of applications. And it is difficult to imagine a product - in the home, in industry, in transportation, or anywhere else for that matter - that does not use adhesives or sealants in some manner. The book focuses on the methodology used for fabricating and testing adhesive and bonded joint specimens. The text covers a wide range of test methods that are used in the field of adhesives, providing vital information for dealing with the range of adhesive properties that are of interest to the adhesive community. With contributions from many experts in the field, the entire breadth of industrial laboratory examples, utilizing different best practice techniques are discussed. The core concept of the book is to provide essential information vital for producing and characterizing adhesives and adhesively bonded joints.

[Engineering with Mathcad](#) Springer Science & Business Media

This book is a comprehensive treatment of engineering undergraduate differential equations as well as linear vibrations and feedback control. While this material has traditionally been separated into different courses in undergraduate engineering curricula. This text provides a streamlined and efficient treatment of material normally covered in three courses. Ultimately, engineering students study mathematics in order to be able to solve problems within the engineering realm. [Engineering Differential Equations: Theory and Applications](#) guides students to approach the mathematical theory with much greater interest and enthusiasm by teaching the theory together with applications. Additionally, it includes an abundance of detailed examples. Appendices include numerous C and FORTRAN example programs. This book is intended for engineering undergraduate students, particularly aerospace and mechanical engineers and students in other disciplines concerned with mechanical systems analysis and control. Prerequisites include basic and advanced calculus with an introduction to linear algebra.

[Testing Adhesive Joints](#) John Wiley & Sons

The statics and mechanics of structures form a core aspect of civil engineering. This book provides an introduction to the subject, starting from classic hand-calculation types of analysis and gradually advancing to a systematic form suitable for computer

implementation. It starts with statically determinate structures in the form of trusses, beams and frames. Instability is discussed in the form of the column problem - both the ideal column and the imperfect column used in actual column design. The theory of statically indeterminate structures is then introduced, and the force and deformation methods are explained and illustrated. An important aspect of the book's approach is the systematic development of the theory in a form suitable for computer implementation using finite elements. This development is supported by two small computer programs, MiniTruss and MiniFrame, which permit static analysis of trusses and frames, as well as linearized stability analysis. The book's final section presents related strength of materials subjects in greater detail; these include stress and strain, failure criteria, and normal and shear stresses in general beam flexure and in beam torsion. The book is well-suited as a textbook for a two-semester introductory course on structures.

[Mechanical Engineer's Reference Book](#) McGraw Hill Professional
[Engineering Analysis with ANSYS Software, Second Edition](#), provides a comprehensive introduction to fundamental areas of engineering analysis needed for research or commercial engineering projects. The book introduces the principles of the finite element method, presents an overview of ANSYS technologies, then covers key application areas in detail. This new edition updates the latest version of ANSYS, describes how to use FLUENT for CFD FEA, and includes more worked examples. With detailed step-by-step explanations and sample problems, this book develops the reader's understanding of FEA and their ability to use ANSYS software tools to solve a range of analysis problems. - Uses detailed and clear step-by-step instructions, worked examples and screen-by-screen illustrative problems to reinforce learning - Updates the latest version of ANSYS, using FLUENT instead of FLOWTRAN - Includes instructions for use of WORKBENCH - Features additional worked examples to show engineering analysis in a broader range of practical engineering applications