

Introductory Chemical Engineering Thermodynamics Elliott

Introductory Chemical Engineering Thermodynamics Studyguide for Introductory Chemical Engineering Thermodynamics by J. Richard Elliott, ISBN 9780136068549 Continuum Mechanics and Thermodynamics Engineering Thermodynamics Engineering and Chemical Thermodynamics The Entropy Principle The Properties of Gases and Liquids, Sixth Edition Compressor Technology Advances Modeling Materials Chemical Engineering Thermodynamics Chemically Reacting Flow Draft Copy of Introductory Chemical Engineering Thermodynamics Introduction to Chemical Engineering Computing Physical and Chemical Equilibrium for Chemical Engineers Solutions Manual to Accompany Fundamentals of Engineering Thermodynamics Problems in Metallurgical Thermodynamics and Kinetics The Mechanics and Thermodynamics of Continua Advances in Numerical Heat Transfer Elementary Principles of Chemical Processes Fundamentals of Chemical Engineering Thermodynamics Fundamentals of Momentum, Heat, and Mass Transfer Precast Concrete Structures Fundamentals of Chemical Engineering Thermodynamics, SI Edition Is That a Big Number? Introductory Transport Phenomena Fundamentals of Chemical Engineering Thermodynamics Chemical Thermodynamics for Process Simulation Thermodynamics (Faires and Simmang) and Problems on Thermodynamics (Faires, Simmang, and Brewer) Chemical Engineering Thermodynamics Introduction to Materials Modelling The ChemSep Book Electromechanical Devices & Components Illustrated Sourcebook Current Topics In Physics: In Honor Of Sir Roger J Elliott Chemical Engineering Computation with MATLAB® Workbook in Physical Chemistry Standard Handbook of Powerplant Engineering Deformation Processes in Minerals, Ceramics and Rocks Transport Phenomena Fundamentals of Thermodynamics Perspectives on Statistical Thermodynamics

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Fundamentals of Chemical Engineering Thermodynamics Sep 13 2020 A brand new book, FUNDAMENTALS OF CHEMICAL ENGINEERING THERMODYNAMICS makes the abstract subject of chemical engineering thermodynamics more accessible to undergraduate students. The subject is presented through a problem-solving inductive (from specific to general) learning approach, written in a conversational and approachable manner. Suitable for either a one-semester course or two-semester sequence in the subject, this book covers thermodynamics in a complete and mathematically rigorous manner, with an emphasis on solving practical engineering problems. The approach taken stresses problem-solving, and draws from best practice engineering teaching strategies. FUNDAMENTALS OF CHEMICAL ENGINEERING THERMODYNAMICS uses examples to frame the importance of the material. Each topic begins with a motivational example that is investigated in context to that topic. This framing of the material is helpful to all readers, particularly to global learners who require big picture insights, and hands-on learners who struggle with abstractions. Each worked example is fully annotated with sketches and comments on the thought process behind the solved problems. Common errors are presented and explained. Extensive margin notes add to the book accessibility as well as presenting opportunities for investigation. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Chemical Thermodynamics for Process Simulation Aug 13 2020 The only textbook that applies thermodynamics to real-world process engineering problems This must-read for advanced students and professionals alike is the first book to demonstrate how chemical thermodynamics work in the real world by applying them to actual engineering examples. It also discusses the advantages and disadvantages of the particular models and procedures, and explains the most important models that are applied in process industry. All the topics are illustrated with examples that are closely related to practical process simulation problems. At the end of each chapter, additional calculation examples are given to enable readers to extend their comprehension. Chemical Thermodynamics for Process Simulation instructs on the behavior of fluids for pure fluids, describing the main types of equations of state and their abilities. It discusses the various quantities of interest in process simulation, their correlation, and prediction in detail. Chapters look at the important terms for the description of the thermodynamics of mixtures; the most important models and routes for phase equilibrium calculation; models which are applicable to a wide variety of non-electrolyte systems; membrane processes; polymer thermodynamics; enthalpy of reaction; chemical equilibria, and more. -Explains thermodynamic fundamentals used in process simulation with solved examples -Includes new chapters about modern measurement techniques, retrograde condensation, and simultaneous description of chemical equilibrium -Comprises numerous solved examples, which simplify the understanding of the often complex calculation procedures, and discusses advantages and disadvantages of models and procedures -Includes estimation methods for thermophysical properties and phase equilibria thermodynamics of alternative separation processes -Supplemented with MathCAD-sheets and DDBST programs for readers to reproduce the examples Chemical Thermodynamics for Process Simulation is an ideal resource for those working in the fields of process development, process synthesis, or process optimization, and an excellent book for students in the engineering sciences.

The Entropy Principle Jun 03 2022 Entropy – the key concept of thermodynamics, clearly explained and carefully illustrated. This book presents an accurate definition of entropy in classical thermodynamics which does not “put the cart before the horse” and is suitable for basic

and advanced university courses in thermodynamics. Entropy is the most important and at the same time the most difficult term of thermodynamics to understand. Many students are discontent with its classical definition since it is either based on “temperature” and “heat” which both cannot be accurately defined without entropy, or since it includes concepts such as “molecular disorder” which does not fit in a macroscopic theory. The physicists Elliott Lieb and Jakob Yngvason have recently developed a new formulation of thermodynamics which is free of these problems. The Lieb-Yngvason formulation of classical thermodynamics is based on the concept of adiabatic accessibility and culminates in the entropy principle. The entropy principle represents the accurate mathematical formulation of the second law of thermodynamics. Temperature becomes a derived quantity whereas “heat” is no longer needed. This book makes the Lieb-Yngvason theory accessible to students. The presentation is supplemented by seven illustrative examples which explain the application of entropy and the entropy principle in practical problems in science and engineering.

Advances in Numerical Heat Transfer May 22 2021 Definitive Treatment of the Numerical Simulation of Bioheat Transfer and Fluid Flow Motivated by the upwelling of current interest in subjects critical to human health, *Advances in Numerical Heat Transfer, Volume 3* presents the latest information on bioheat and biofluid flow. Like its predecessors, this volume assembles a team of renowned international researchers who cover both fundamentals and applications. It explores ingenious modeling techniques and innovative numerical simulation for solving problems in biomedical engineering. The text begins with the modeling of thermal transport by perfusion within the framework of the porous-media theory. It goes on to review other perfusion models, different forms of the bioheat equation for several thermal therapies, and thermal transport in individual blood vessels. The book then describes thermal methods of tumor detection and treatment as well as issues of blood heating and cooling during lengthy surgeries. It also discusses how the enhancement of heat conduction in tumor tissue by intruded nanoparticles improves the efficacy of thermal destruction of the tumor. The final chapters focus on whole-body thermal models, issues concerning the thermal treatment of cancer, and a case study on the thermal ablation of an enlarged prostate.

Current Topics In Physics: In Honor Of Sir Roger J Elliott Feb 05 2020 This indispensable book is a compilation of invited talks delivered at the symposium, “Current Topics in Physics” held in Mexico City in June 2003, to celebrate the 75th birthday of Professor Sir Roger Elliott. The contributions have been prepared by research associates, former students, post-doctoral fellows and colleagues of Professor Elliott, many of them leading scientists — as Sir Roger himself — in important research institutes around the world. The book gives a very timely and comprehensive overview of various key areas of modern condensed matter and statistical physics. 19 original contributions are included, grouped in three main areas: disorder and dynamical systems, structures and glasses, electrical and magnetic properties. The contributions are by many of the foremost researchers in the field of condensed matter and statistical physics. In particular, contributions by such prominent scientists as M E Fisher, A A Maradudin, M F Thorpe, M Balkanski, T Fujiwara, and of course Sir Roger Elliott himself make this book a rewarding read.

Physical and Chemical Equilibrium for Chemical Engineers Sep 25 2021 This book concentrates on the topic of physical and chemical equilibrium. Using the simplest mathematics along with numerous numerical examples it accurately and rigorously covers physical and chemical equilibrium in depth and detail. It continues to cover the topics found in the first edition however numerous updates have been made including: Changes in naming and notation (the first edition used the traditional names for the Gibbs Free Energy and for Partial Molal Properties, this

edition uses the more popular Gibbs Energy and Partial Molar Properties,) changes in symbols (the first edition used the Lewis-Randal fugacity rule and the popular symbol for the same quantity, this edition only uses the popular notation,) and new problems have been added to the text. Finally the second edition includes an appendix about the Bridgman table and its use.

Chemical Engineering Computation with MATLAB® Jan 06 2020 Most problems encountered in chemical engineering are sophisticated and interdisciplinary. Thus, it is important for today's engineering students, researchers, and professionals to be proficient in the use of software tools for problem solving. MATLAB® is one such tool that is distinguished by the ability to perform calculations in vector-matrix form, a large library of built-in functions, strong structural language, and a rich set of graphical visualization tools. Furthermore, MATLAB integrates computations, visualization and programming in an intuitive, user-friendly environment. *Chemical Engineering Computation with MATLAB®* presents basic to advanced levels of problem-solving techniques using MATLAB as the computation environment. The book provides examples and problems extracted from core chemical engineering subject areas and presents a basic instruction in the use of MATLAB for problem solving. It provides many examples and exercises and extensive problem-solving instruction and solutions for various problems. Solutions are developed using fundamental principles to construct mathematical models and an equation-oriented approach is used to generate numerical results. A wealth of examples demonstrate the implementation of various problem-solving approaches and methodologies for problem formulation, problem solving, analysis, and presentation, as well as visualization and documentation of results. This book also provides aid with advanced problems that are often encountered in graduate research and industrial operations, such as nonlinear regression, parameter estimation in differential systems, two-point boundary value problems and partial differential equations and optimization.

Problems in Metallurgical Thermodynamics and Kinetics Jul 24 2021 *Problems in Metallurgical Thermodynamics and Kinetics* provides an illustration of the calculations encountered in the study of metallurgical thermodynamics and kinetics, focusing on theoretical concepts and practical applications. The chapters of this book provide comprehensive account of the theories, including basic and applied numerical examples with solutions. Unsolved numerical examples drawn from a wide range of metallurgical processes are also provided at the end of each chapter. The topics discussed include the three laws of thermodynamics; Clausius-Clapeyron equation; fugacity, activity, and equilibrium constant; thermodynamics of electrochemical cells; and kinetics. This book is beneficial to undergraduate and postgraduate students in universities, polytechnics, and technical colleges.

Solutions Manual to Accompany Fundamentals of Engineering Thermodynamics Aug 25 2021

Electromechanical Devices & Components Illustrated Sourcebook Mar 08 2020 Get Quick Access to 2,000 Illustrations of Components and Devices Used in Electromechanical Machines and Systems! Ideal for all engineers and technicians who design, repair, and operate electromechanical equipment, *Electromechanical Devices and Components Illustrated Sourcebook* provides 2,000 illustrations of the most commonly used elements found in today's electromechanical machines and systems. This essential working tool contains detailed diagrams, drawn to scale, with relevant calculations and tabular information presented for easy reference. Packed with engineering examples and principles, this easy-to-use guide offers you a comprehensive overview of all the most important and fundamental electromechanical elements. The book includes on-target illustrations of power sources...acoustic devices...electrical controls...circuit breakers...connectors...fuses and motors...heating elements...mechanical

switches and relays...vacuum tubes...meters...wire and conductors...sensors and transducers...and much more. Electromechanical Devices and Components Illustrated Sourcebook features: 2,000 illustrations of electromechanical components and devices Quick access to vital engineering information All diagrams drawn to scale, with calculations and tabular data Detailed explanations of elements, with graphs and formulae A broad range of engineering examples and principles A source of innovative ideas for design engineers This Time-Saving Engineering Tool Includes Illustrations of • Power Sources • Acoustic Devices • Magnetic Components • Electrical Controls _ Circuit Protection • Heating • Vacuum Tubes • Rotating Equipment • Meters • Connectors • Wire and Conductors • Lighting • Controlling Mechanical Movements • Sensors • Standards

Compressor Technology Advances Apr 01 2022 This book describes fresh approaches to compression technology. The authors describe in detail where, why, and how these can be of value to process plants. As such plants have become ever larger and more complex, more technology-intensive solutions have had to be developed for process machinery. The best practices that have emerged to address these requirements are assembled in this book.

Elementary Principles of Chemical Processes Apr 20 2021 Elementary Principles of Chemical Processes, 4th Edition Student International Version prepares students to formulate and solve material and energy balances in chemical process systems and lays the foundation for subsequent courses in chemical engineering. The text provides a realistic, informative, and positive introduction to the practice of chemical engineering.

Workbook in Physical Chemistry Dec 05 2019 The Workbooks in Chemistry series takes a worked example led approach to help undergraduate students develop the problem-solving skills they need to excel in their studies - and beyond.

Chemical Engineering Thermodynamics Jun 10 2020 This book offers a full account of thermodynamic systems in chemical engineering. It provides a solid understanding of the basic concepts of the laws of thermodynamics as well as their applications with a thorough discussion of phase and chemical reaction equilibria. At the outset the text explains the various key terms of thermodynamics with suitable examples and then thoroughly deals with the virial and cubic equations of state by showing the P-V-T (pressure, molar volume and temperature) relation of fluids. It elaborates on the first and second laws of thermodynamics and their applications with the help of numerous engineering examples. The text further discusses the concepts of exergy, standard property changes of chemical reactions, thermodynamic property relations and fugacity. The book also includes detailed discussions on residual and excess properties of mixtures, various activity coefficient models, local composition models, and group contribution methods. In addition, the text focuses on vapour-liquid and other phase equilibrium calculations, and analyzes chemical reaction equilibria and adiabatic reaction temperature for systems with complete and incomplete conversion of reactants. **key Features** ? Includes a large number of fully worked-out examples to help students master the concepts discussed. ? Provides well-graded problems with answers at the end of each chapter to test and foster students' conceptual understanding of the subject. The total number of solved examples and end-chapter exercises in the book are over 600. ? Contains chapter summaries that review the major concepts covered. The book is primarily designed for the undergraduate students of chemical engineering and its related disciplines such as petroleum engineering and polymer engineering. It can also be useful to professionals. The Solution Manual containing the complete worked-out solutions to chapter-end exercises and problems is available for instructors.

Chemical Engineering Thermodynamics Jan 30 2022

Draft Copy of Introductory Chemical Engineering Thermodynamics Nov 27 2021

Introduction to Materials Modelling May 10 2020 Introduction to materials modelling describes the use of computer simulation for the prediction and understanding of the structure and properties of materials. It has been based upon the Materials Modelling Masters course given at the Department of Materials Science and Metallurgy, University of Cambridge, UK, which is aimed particularly at graduate students with a background in any of the physical sciences.

Engineering Thermodynamics Aug 05 2022

Introductory Transport Phenomena Oct 15 2020 Introductory Transport Phenomena by R. Byron Bird, Warren E. Stewart, Edwin N. Lightfoot, and Daniel Klingenberg is a new introductory textbook based on the classic Bird, Stewart, Lightfoot text, Transport Phenomena. The authors' goal in writing this book reflects topics covered in an undergraduate course. Some of the rigorous topics suitable for the advanced students have been retained. The text covers topics such as: the transport of momentum; the transport of energy and the transport of chemical species. The organization of the material is similar to Bird/Stewart/Lightfoot, but presentation has been thoughtfully revised specifically for undergraduate students encountering these concepts for the first time. Devoting more space to mathematical derivations and providing fuller explanations of mathematical developments—including a section of the appendix devoted to mathematical topics—allows students to comprehend transport phenomena concepts at an undergraduate level.

Perspectives on Statistical Thermodynamics Jun 30 2019 This original text develops a deep, conceptual understanding of thermal physics and highlights the important links between statistical physics and classical thermodynamics. It examines how thermal physics fits within physics as a whole, and is perfect for undergraduate and graduate students, and researchers interested in a fresh approach to the subject.

Modeling Materials Feb 28 2022 Material properties emerge from phenomena on scales ranging from Angstroms to millimeters, and only a multiscale treatment can provide a complete understanding. Materials researchers must therefore understand fundamental concepts and techniques from different fields, and these are presented in a comprehensive and integrated fashion for the first time in this book. Incorporating continuum mechanics, quantum mechanics, statistical mechanics, atomistic simulations and multiscale techniques, the book explains many of the key theoretical ideas behind multiscale modeling. Classical topics are blended with new techniques to demonstrate the connections between different fields and highlight current research trends. Example applications drawn from modern research on the thermo-mechanical properties of crystalline solids are used as a unifying focus throughout the text. Together with its companion book, *Continuum Mechanics and Thermodynamics* (Cambridge University Press, 2011), this work presents the complete fundamentals of materials modeling for graduate students and researchers in physics, materials science, chemistry and engineering.

Is That a Big Number? Nov 15 2020 Impressive statistics are thrown at us every day - the cost of health care; the size of an earthquake; the distance to the nearest star; the number of giraffes in the world. We know all these numbers are important - some more than others - and it's vaguely unsettling when we don't really have a clear sense of how remarkable or how ordinary they are. How do we work out what these figures actually mean? Are they significant, should we be worried, or excited, or impressed? How big is big, how small is small? With this entertaining and engaging book, help is at hand. Andrew Elliott gives us the tips and tools to make sense of numbers, to get a sense of proportion, to decipher what matters. It is a celebration of a numerate way of understanding the world. It shows how number skills help us to understand the everyday world close at hand, and how the same skills can be stretched to demystify the bigger numbers that we find in the wider contexts of science, politics, and the universe. Entertaining, full of

practical examples, and memorable concepts, *Is That A Big Number?* renews our relationship with figures. If numbers are the musical notes with which the symphony of the universe is written, and you're struggling to hear the tune, then this is the book to get you humming again. *Thermodynamics (Faires and Simmang) and Problems on Thermodynamics (Faires, Simmang, and Brewer)* Jul 12 2020

Deformation Processes in Minerals, Ceramics and Rocks Oct 03 2019 This monograph has its origins in a two-day meeting with the same title held in London, England in the spring of 1987. The idea for the meeting came from members of the UK Mineral and Rock Physics Group. It was held under the auspices of, and made possible by the generous support of, the Mineralogical Society of Great Britain and Ireland. Additional financial assistance was provided by ECC International plc and the Cookson Group plc. The aims of the London meeting were to survey the current state of knowledge about deformation processes in non-metallic materials and to bring together both experts and less experienced Earth scientists and ceramicists who normally had little contact but shared common interests in deformation mechanisms. This monograph has similar aims and, indeed, most of its authors were keynote speakers at the meeting. Consequently, most of the contributions contain a review element in addition to the presentation and discussion of new results. In adopting this format, the editors hope that the monograph will provide a valuable state-of-the-art sourcebook, both to active researchers and also to graduate students just starting in the relevant fields.

Chemically Reacting Flow Dec 29 2021 Complex chemically reacting flow simulations are commonly employed to develop quantitative understanding and to optimize reaction conditions in systems such as combustion, catalysis, chemical vapor deposition, and other chemical processes. Although reaction conditions, geometries, and fluid flow can vary widely among the applications of chemically reacting flows, all applications share a need for accurate, detailed descriptions of the chemical kinetics occurring in the gas-phase or on reactive surfaces. *Chemically Reacting Flow: Theory and Practice* combines fundamental concepts in fluid mechanics and physical chemistry, assisting the student and practicing researcher in developing analytical and simulation skills that are useful and extendable for solving real-world engineering problems. The first several chapters introduce transport processes, primarily from a fluid-mechanics point of view, incorporating computational simulation from the outset. The middle section targets physical chemistry topics that are required to develop chemically reacting flow simulations, such as chemical thermodynamics, molecular transport, chemical rate theories, and reaction mechanisms. The final chapters deal with complex chemically reacting flow simulations, emphasizing combustion and materials processing. Among other features, *Chemically Reacting Flow: Theory and Practice*: -Advances a comprehensive approach to interweaving the fundamentals of chemical kinetics and fluid mechanics -Embraces computational simulation, equipping the reader with effective, practical tools for solving real-world problems -Emphasizes physical fundamentals, enabling the analyst to understand how reacting flow simulations achieve their results -Provides a valuable resource for scientists and engineers who use Chemkin or similar software Computer simulation of reactive systems is highly effective in the development, enhancement, and optimization of chemical processes. *Chemically Reacting Flow* helps prepare both students and professionals to take practical advantage of this powerful capability.

The ChemSep Book Apr 08 2020

Fundamentals of Chemical Engineering Thermodynamics Mar 20 2021 The Clear, Well-Organized Introduction to Thermodynamics Theory and Calculations for All Chemical Engineering Undergraduate Students This text is designed to make thermodynamics far easier for

undergraduate chemical engineering students to learn, and to help them perform thermodynamic calculations with confidence. Drawing on his award-winning courses at Penn State, Dr. Themis Matsoukas focuses on “why” as well as “how.” He offers extensive imagery to help students conceptualize the equations, illuminating thermodynamics with more than 100 figures, as well as 190 examples from within and beyond chemical engineering. Part I clearly introduces the laws of thermodynamics with applications to pure fluids. Part II extends thermodynamics to mixtures, emphasizing phase and chemical equilibrium. Throughout, Matsoukas focuses on topics that link tightly to other key areas of undergraduate chemical engineering, including separations, reactions, and capstone design. More than 300 end-of-chapter problems range from basic calculations to realistic environmental applications; these can be solved with any leading mathematical software. Coverage includes • Pure fluids, PVT behavior, and basic calculations of enthalpy and entropy • Fundamental relationships and the calculation of properties from equations of state • Thermodynamic analysis of chemical processes • Phase diagrams of binary and simple ternary systems • Thermodynamics of mixtures using equations of state • Ideal and nonideal solutions • Partial miscibility, solubility of gases and solids, osmotic processes • Reaction equilibrium with applications to single and multiphase reactions

Introductory Chemical Engineering Thermodynamics Nov 08 2022 In this book, two leading experts and long-time instructors thoroughly explain thermodynamics, taking the molecular perspective that working engineers require. This edition contains extensive new coverage of today's fast-growing biochemical engineering applications, notably biomass conversion to fuels and chemicals. It also presents many new MATLAB examples and tools to complement its previous usage of Excel and other software.

Continuum Mechanics and Thermodynamics Sep 06 2022 Treats subjects directly related to nonlinear materials modeling for graduate students and researchers in physics, materials science, chemistry and engineering.

Transport Phenomena Sep 01 2019 Part II covers applications in greater detail. The three transport phenomena--heat, mass, and momentum transfer--are treated in depth through simultaneous (or parallel) developments.

Precast Concrete Structures Jan 18 2021 This second edition of *Precast Concrete Structures* introduces the conceptual design ideas for the prefabrication of concrete structures and presents a number of worked examples that translate designs from BS 8110 to Eurocode EC2, before going into the detail of the design, manufacture, and construction of precast concrete multi-storey buildings. Detailed structural analysis of precast concrete and its use is provided and some details are presented of recent precast skeletal frames of up to forty storeys. The theory is supported by numerous worked examples to Eurocodes and European Product Standards for precast reinforced and prestressed concrete elements, composite construction, joints and connections and frame stability, together with extensive specifications for precast concrete structures. The book is extensively illustrated with over 500 photographs and line drawings.

Standard Handbook of Powerplant Engineering Nov 03 2019 Extensively revised and updated, this new edition of a classic resource provides powerplant engineers with a full range of information from basic operations to leading-edge technologies, including steam generation, turbines and diesels, fuels and fuel handling, pollution control, plant electrical systems, and instrumentation and control. New material covers various energy resources for power generation, nuclear plant systems, hydroelectric power stations, alternative and cogeneration energy plants, and environmental controls. With over 600 drawings, diagrams, and photographs, it offers engineers and technicians the information needed to keep powerplants operating smoothly into the 21st century.

Fundamentals of Chemical Engineering Thermodynamics, SI Edition Dec 17 2020 A brand new book, **FUNDAMENTALS OF CHEMICAL ENGINEERING THERMODYNAMICS** makes the abstract subject of chemical engineering thermodynamics more accessible to undergraduate students. The subject is presented through a problem-solving inductive (from specific to general) learning approach, written in a conversational and approachable manner. Suitable for either a one-semester course or two-semester sequence in the subject, this book covers thermodynamics in a complete and mathematically rigorous manner, with an emphasis on solving practical engineering problems. The approach taken stresses problem-solving, and draws from best practice engineering teaching strategies. **FUNDAMENTALS OF CHEMICAL ENGINEERING THERMODYNAMICS** uses examples to frame the importance of the material. Each topic begins with a motivational example that is investigated in context to that topic. This framing of the material is helpful to all readers, particularly to global learners who require big picture insights, and hands-on learners who struggle with abstractions. Each worked example is fully annotated with sketches and comments on the thought process behind the solved problems. Common errors are presented and explained. Extensive margin notes add to the book accessibility as well as presenting opportunities for investigation. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

The Properties of Gases and Liquids, Sixth Edition May 02 2022 A thoroughly revised edition of the "must have" chemical engineering reference This go-to chemical engineering guide provides you with a single source for up-to-date physical data, chemical data, and predictive methods. Fully updated for the latest advances, the book contains hands-on estimation methods for extrapolating and interpolating. New content includes advanced EOSs with correlated and predicted parameters (e.g. SAFT implementations), advanced computational methods, (e.g. molecular simulation), quantum density functional theory (e.g. LCC) and semi-empirical combinations (e.g. COSMO-RS implementations and SPEADM). This broad review and objective evaluation of wide-ranging methods is essential to progress in the field of thermophysical property prediction and to advancing the fundamentals of chemical process and product design. The Properties of Gases and Liquids, Sixth Edition provides the latest curated data on over 480 compounds and includes a special section devoted to the interpretation of uncertainty in physical property estimation. Supplemental materials and compilation methods are less committed to hand calculations than in previous editions. Chapter-by-chapter sample calculations are provided throughout. Refreshed throughout to include the latest data and methods Includes computer codes that reproduce the computations in the book Written by a team of recognized chemical engineering experts

Fundamentals of Thermodynamics Aug 01 2019

Engineering and Chemical Thermodynamics Jul 04 2022 Chemical engineers face the challenge of learning the difficult concept and application of entropy and the 2nd Law of Thermodynamics. By following a visual approach and offering qualitative discussions of the role of molecular interactions, Koretsky helps them understand and visualize thermodynamics. Highlighted examples show how the material is applied in the real world. Expanded coverage includes biological content and examples, the Equation of State approach for both liquid and vapor phases in VLE, and the practical side of the 2nd Law. Engineers will then be able to use this resource as the basis for more advanced concepts.

Studyguide for Introductory Chemical Engineering Thermodynamics by J. Richard Elliott, ISBN 9780136068549 Oct 07 2022 Never HIGHLIGHT a Book Again! Virtually all of the testable terms, concepts, persons, places, and events from the textbook are included. Cram101

Just the FACTS101 studyguides give all of the outlines, highlights, notes, and quizzes for your textbook with optional online comprehensive practice tests. Only Cram101 is Textbook Specific. Accompanys: 9780136068549 .

The Mechanics and Thermodynamics of Continua Jun 22 2021 The Mechanics and Thermodynamics of Continua presents a unified treatment of continuum mechanics and thermodynamics that emphasises the universal status of the basic balances and the entropy imbalance. These laws are viewed as fundamental building blocks on which to frame theories of material behaviour. As a valuable reference source, this book presents a detailed and complete treatment of continuum mechanics and thermodynamics for graduates and advanced undergraduates in engineering, physics and mathematics. The chapters on plasticity discuss the standard isotropic theories and, in addition, crystal plasticity and gradient plasticity.

Fundamentals of Momentum, Heat, and Mass Transfer Feb 16 2021

Introduction to Chemical Engineering Computing Oct 27 2021 Step-by-step instructions enable chemical engineers to masterkey software programs and solve complex problems Today, both students and professionals in chemical engineering must solve increasingly complex problems dealing with refineries, fuel cells, microreactors, and pharmaceutical plants, to name a few. With this book as their guide, readers learn to solve these problems using their computers and Excel, MATLAB, Aspen Plus, and COMSOL Multiphysics. Moreover, they learn how to check their solutions and validate their results to make sure they have solved the problems correctly. Now in its Second Edition, Introduction to Chemical Engineering Computing is based on the author's firsthand teaching experience. As a result, the emphasis is on problem solving. Simple introductions help readers become conversant with each program and then tackle a broad range of problems in chemical engineering, including: Equations of state Chemical reaction equilibria Mass balances with recycle streams Thermodynamics and simulation of mass transfer equipment Process simulation Fluid flow in two and three dimensions All the chapters contain clear instructions, figures, and examples to guide readers through all the programs and types of chemical engineering problems. Problems at the end of each chapter, ranging from simple to difficult, allow readers to gradually build their skills, whether they solve the problems themselves or in teams. In addition, the book's accompanying website lists the core principles learned from each problem, both from a chemical engineering and a computational perspective. Covering a broad range of disciplines and problems within chemical engineering, Introduction to Chemical Engineering Computing is recommended for both undergraduate and graduate students as well as practicing engineers who want to know how to choose the right computer software program and tackle almost any chemical engineering problem.