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Presents comprehensive coverage of the subject of thermodynamics from a chemical engineering viewpoint. This text provides an exposition of the principles of thermodynamics and details their application to chemical processes. It contains problems, examples, and illustrations to help

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students understand complex concepts. This text provides balanced coverage of the basic concepts of thermodynamics and heat transfer. Together with the illustrations, student-friendly writing style, and accessible math, this is an ideal text for an introductory thermal science course for non-mechanical engineering majors.

Chemical engineers face the challenge of learning the difficult concept and application of entropy and the 2nd Law

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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.

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Engineers will then be able to use this resource as the basis for more advanced concepts.

Keeping the importance of basic tools of process calculations—material balance and energy balance—in mind, the text prepares the students to formulate material and energy balance theory on chemical process systems. It also demonstrates how to solve the main process-related problems that crop up in chemical engineering practice. The

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chapters are organized in a way that enables the students to acquire an in-depth understanding of the subject. The emphasis is given to the units and conversions, basic concepts of calculations, material balance with/without chemical reactions, and combustion of fuels and energy balances. Apart from numerous illustrations, the book contains numerous solved problems and exercises which bridge the gap between

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theoretical learning and practical implementation. All the numerical problems are solved with block diagrams to reinforce the understanding of the concepts. Primarily intended as a text for the undergraduate students of chemical engineering, it will also be useful for other allied branches of chemical engineering such as polymer science and engineering and petroleum engineering. KEY FEATURES • Methods of calculation for stoichiometric

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proportions with practical examples from the Industry • Simplified method of solving numerical problems under material balance with and without chemical reactions • Conversions of chemical engineering equations from one unit to another • Solution of fuel and combustion, and energy balance problems using tabular column

Thermodynamics

Thermodynamics In Nuclear Power Plant Systems

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Refrigeration Systems and Applications
Paths to Sustainable Energy
Fox and McDonald's Introduction to
Fluid Mechanics

The ninth edition of Thermodynamics and Heat Power contains a revised sequence of thermodynamics concepts including physical properties, processes, and energy systems, to enable the attainment of learning outcomes by Engineering and Engineering Technology students taking an introductory course in thermodynamics. Built around an easily understandable approach, this updated text focuses on thermodynamics fundamentals, and explores renewable energy

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generation, IC engines, power plants, HVAC, and applied heat transfer. Energy, heat, and work are examined in relation to thermodynamics cycles, and the effects of fluid properties on system performance are explained. Numerous step-by-step examples and problems make this text ideal for undergraduate students. This new edition: Introduces physics-based mathematical formulations and examples in a way that enables problem-solving. Contains extensive learning features within each chapter, and basic computational exercises for in-class and laboratory activities. Includes a straightforward review of applicable calculus concepts. Uses everyday examples to foster a better understanding of thermal science and engineering concepts. This book is suitable for undergraduate

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students in engineering and engineering technology.

"The CD contains data and descriptive material for making detailed thermodynamic calculations involving materials processing"--Preface.

CD-ROM contains: the limited academic version of Engineering equation solver(EES) with homework problems. This new edition of Borgnakke's Fundamentals of Thermodynamics continues to offer a comprehensive and rigorous treatment of classical thermodynamics, while retaining an engineering perspective. With concise, applications-oriented discussion of topics and self-test problems, this text encourages students to monitor their own learning. This classic text provides a solid foundation for

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subsequent studies in fields such as fluid mechanics, heat transfer and statistical thermodynamics, and prepares students to effectively apply thermodynamics in the practice of engineering.

Steel Design

Exergy

Fundamentals of Chemical Engineering Thermodynamics, SI Edition

EBOOK: Fundamentals of Thermal-Fluid Sciences (SI units)

Thermodynamics and Heat Power, Ninth Edition

Now in a new edition, this book continues to set the standard for teaching readers how to be

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effective problem solvers, emphasizing the authors's signature methodologies that have taught over a half million students worldwide. This new edition provides a student-friendly approach that emphasizes the relevance of thermodynamics principles to some of the most critical issues of today and coming decades, including a wealth of integrated coverage of energy and the environment, biomedical/bioengineering, as well as emerging technologies. Visualization skills are developed and basic principles demonstrated through a complete set of animations that have

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been interwoven throughout.

This book covers the fundamentals of thermodynamics required to understand electrical power generation systems, honing in on the application of these principles to nuclear reactor power systems. It includes all the necessary information regarding the fundamental laws to gain a complete understanding and apply them specifically to the challenges of operating nuclear plants. Beginning with definitions of thermodynamic variables such as temperature, pressure and specific volume, the book then

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explains the laws in detail, focusing on pivotal concepts such as enthalpy and entropy, irreversibility, availability, and Maxwell relations. Specific applications of the fundamentals to Brayton and Rankine cycles for power generation are considered in-depth, in support of the book's core goal- providing an examination of how the thermodynamic principles are applied to the design, operation and safety analysis of current and projected reactor systems. Detailed appendices cover metric and English system units and conversions, detailed steam and gas tables,

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heat transfer properties, and nuclear reactor system descriptions.

Thermodynamics, An Engineering Approach, covers the basic principles of thermodynamics while presenting a wealth of real-world engineering examples, so students get a feel for how thermodynamics is applied in engineering practice. This text helps students develop an intuitive understanding by emphasizing the physics and physical arguments. Cengel and Boles explore the various facets of thermodynamics through careful explanations of concepts and use

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of numerous practical examples and figures, having students develop necessary skills to bridge the gap between knowledge, and the confidence to properly apply their knowledge. The 9th edition offers new video and applet tools inside Connect. McGraw-Hill Education's Connect, is also available as an optional, add on item. Connect is the only integrated learning system that empowers students by continuously adapting to deliver precisely what they need, when they need it, how they need it, so that class time is more effective. Connect allows the professor to assign homework,

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quizzes, and tests easily and automatically grades and records the scores of the student's work.

Problems are randomized to prevent sharing of answers and may also have a "multi-step solution" which helps move the students' learning along if they experience difficulty.

This supplement contains all the data and formulae necessary to complete a thermodynamics paper in a closed-book examination where students are not allowed access to their original textbooks, but can use tables as a reference source.

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An Engineering Approach. Property Tables, Figures and Charts to Accompany Loose Leaf Version for Thermodynamics: An Engineering Approach 7E
Engineering Thermodynamics
Fluid and Thermodynamics
Introduction to the Thermodynamics of Materials, Fifth Edition

This book differs from other thermodynamics texts in its objective which is to provide engineers with the concepts, tools, and experience needed to solve practical real-world energy problems. The

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presentation integrates computer tools (e.g., EES) with thermodynamic concepts to allow engineering students and practising engineers to solve problems they would otherwise not be able to solve. The use of examples, solved and explained in detail, and supported with property diagrams that are drawn to scale, is ubiquitous in this textbook. The examples are not trivial, drill problems, but rather complex and timely real world problems that are of interest by themselves. As with the presentation, the solutions to these examples are complete and do not skip steps. Similarly the book includes numerous end of

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chapter problems, both typeset and online. Most of these problems are more detailed than those found in other thermodynamics textbooks. The supplements include complete solutions to all exercises, software downloads, and additional content on selected topics. These are available at the book web site www.cambridge.org/KleinandNellis.

This book deals with exergy and its applications to various energy systems and applications as a potential tool for design, analysis and optimization, and its role in minimizing and/or eliminating

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environmental impacts and providing sustainable development. In this regard, several key topics ranging from the basics of the thermodynamic concepts to advanced exergy analysis techniques in a wide range of applications are covered as outlined in the contents. Offers comprehensive coverage of exergy and its applications, along with the most up-to-date information in the area with recent developments Connects exergy with three essential areas in terms of energy, environment and sustainable development Provides a number of illustrative examples, practical applications, and case

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studies Written in an easy-to-follow style, starting from the basics to advanced systems

THE FOURTH EDITION IN SI UNITS of Fundamentals of Thermal-Fluid Sciences presents a balanced coverage of thermodynamics, fluid mechanics, and heat transfer packaged in a manner suitable for use in introductory thermal sciences courses. By emphasizing the physics and underlying physical phenomena involved, the text gives students practical examples that allow development of an understanding of the theoretical underpinnings of thermal sciences. All the popular features of the

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previous edition are retained in this edition while new ones are added. THIS EDITION FEATURES: A New Chapter on Power and Refrigeration Cycles The new Chapter 9 exposes students to the foundations of power generation and refrigeration in a well-ordered and compact manner. An Early Introduction to the First Law of Thermodynamics (Chapter 3) This chapter establishes a general understanding of energy, mechanisms of energy transfer, and the concept of energy balance, thermo-economics, and conversion efficiency. Learning Objectives Each chapter begins with an overview of the material to be

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covered and chapter-specific learning objectives to introduce the material and to set goals. Developing Physical Intuition A special effort is made to help students develop an intuitive feel for underlying physical mechanisms of natural phenomena and to gain a mastery of solving practical problems that an engineer is likely to face in the real world. New Problems A large number of problems in the text are modified and many problems are replaced by new ones. Some of the solved examples are also replaced by new ones. Upgraded Artwork Much of the line artwork in the text is upgraded to figures that

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appear more three-dimensional and realistic. MEDIA RESOURCES: Limited Academic Version of EES with selected text solutions packaged with the text on the Student DVD. The Online Learning Center (www.mheducation.asia/olc/cengelFTFS4e) offers online resources for instructors including PowerPoint® lecture slides, and complete solutions to homework problems. McGraw-Hill's Complete Online Solutions Manual Organization System (<http://cosmos.mhhe.com/>) allows instructors to streamline the creation of assignments, quizzes, and tests by using problems and solutions from the

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textbook, as well as their own custom material. Ugly's Electrical References, 2017 Edition is the on-the-job reference tool of choice for electrical professionals. Used worldwide by electricians, engineers, contractors, designers, maintenance workers, apprentices, and students Ugly's contains the most commonly required electrical information in an easy-to-read and easy-to-access format. Updated to reflect the 2017 National Electrical Code (NEC) the new edition features full color diagrams, tables, and illustrations, expanded coverage of alternative energies, and updated electrical safety information.

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Ugly's offers the most pertinent information used by electricians right at their fingertips, including: mathematical formulas, National Electrical Code tables, wiring configurations, conduit bending, ampacity and conduit fill information, and life-saving first aid procedures.

Essential Thermodynamics

An Engineering Approach

Introduction to Chemical Engineering

Thermodynamics

Fundamentals of Thermodynamics

Engineering and Chemical Thermodynamics

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Thermodynamics Seventh Edition covers the basic principles of thermodynamics while presenting a wealth of real-world engineering examples so students get a feel for how thermodynamics is applied in engineering practice. This text helps students develop an intuitive understanding of thermodynamics by emphasizing the physics and physical arguments. Cengel/Boles explore the various facets of thermodynamics through careful explanations of concepts and its use of numerous practical examples and figures, having students develop necessary skills to bridge the gap between

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knowledge and the confidence to properly apply knowledge. The media package for this text is extensive, giving users a large variety of supplemental resources to choose from. A Student Resources DVD is packaged with each new copy of the text and contains the popular Engineering Equation Solver (EES) software. McGraw-Hill's new Connect is available to students and instructors. Connect is a powerful, web-based assignment management system that makes creating and grading assignments easy for instructors and learning convenient for students. It saves time and makes learning for students

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accessible anytime, anywhere. With Connect, instructors can easily manage assignments, grading, progress, and students receive instant feedback from assignments and practice problems.

Volume 5.

Appropriate for a one-semester undergraduate or first-year graduate course, this text introduces the quantitative treatment of chemical reaction engineering. It covers both homogeneous and heterogeneous reacting systems and examines chemical reaction engineering as well as chemical reactor engineering. Each chapter

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contains numerous worked-out problems and real-world vignettes involving commercial applications, a feature widely praised by reviewers and teachers. 2003 edition.

Through ten editions, Fox and McDonald's Introduction to Fluid Mechanics has helped students understand the physical concepts, basic principles, and analysis methods of fluid mechanics. This market-leading textbook provides a balanced, systematic approach to mastering critical concepts with the proven Fox-McDonald solution methodology. In-depth yet accessible chapters present governing equations,

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clearly state assumptions, and relate mathematical results to corresponding physical behavior. Emphasis is placed on the use of control volumes to support a practical, theoretically-inclusive problem-solving approach to the subject. Each comprehensive chapter includes numerous, easy-to-follow examples that illustrate good solution technique and explain challenging points. A broad range of carefully selected topics describe how to apply the governing equations to various problems, and explain physical concepts to enable students to model real-world fluid flow situations. Topics

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include flow measurement, dimensional analysis and similitude, flow in pipes, ducts, and open channels, fluid machinery, and more. To enhance student learning, the book incorporates numerous pedagogical features including chapter summaries and learning objectives, end-of-chapter problems, useful equations, and design and open-ended problems that encourage students to apply fluid mechanics principles to the design of devices and systems.

Problems and Solutions on Thermodynamics and Statistical Mechanics

A Practical Approach with EES CD

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Fundamentals of Chemical Reaction Engineering
Solutions Manual to Accompany Fundamentals of
Engineering Thermodynamics
Introduction to Thermodynamics and Heat
Transfer

"Thermodynamics, An Engineering Approach," eighth edition, covers the basic principles of thermodynamics while presenting a wealth of real-world engineering examples so students get a feel for how thermodynamics is applied in engineering practice. This text helps students develop an intuitive understanding by emphasizing the physics and physical arguments. Cengel and Boles explore the various facets of thermodynamics through careful explanations of

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concepts and use of numerous practical examples and figures, having students develop necessary skills to bridge the gap between knowledge and the confidence to properly apply their knowledge. McGraw-Hill is proud to offer "Connect" with the eighth edition of Cengel/Boles, "Thermodynamics, An Engineering Approach." This innovative and powerful new system helps your students learn more efficiently and gives you the ability to assign homework problems simply and easily. Problems are graded automatically, and the results are recorded immediately. Track individual student performance - by question, assignment, or in relation to the class overall with detailed grade reports. ConnectPlus provides students with all the advantages of Connect, plus 24/7 access to an eBook.

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Cengel's "Thermodynamics," eighth edition, includes the power of McGraw-Hill's "LearnSmart" a proven adaptive learning system that helps students learn faster, study more efficiently, and retain more knowledge through a series of adaptive questions. This innovative study tool pinpoints concepts the student does not understand and maps out a personalized plan for success.

STEEL DESIGN covers the fundamentals of structural steel design with an emphasis on the design of members and their connections, rather than the integrated design of buildings. The book is designed so that instructors can easily teach LRFD, ASD, or both, time-permitting. The application of fundamental principles is encouraged for design procedures as well as for practical design, but a

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theoretical approach is also provided to enhance student development. While the book is intended for junior-and senior-level engineering students, some of the later chapters can be used in graduate courses and practicing engineers will find this text to be an essential reference tool for reviewing current practices. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

ThermodynamicsAn Engineering Approach

This textbook covers basic principles of equilibrium behavior for systems of interest to chemical engineering, including elementary microscopic concepts. A strong emphasis is placed on fundamentals: energy conservation in open and closed systems (first law), temperature, entropy and

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reversibility (second law), fundamental equations, and criteria for equilibrium and stability. These concepts are then applied to the analysis of energy conversion processes, mixing, phase equilibria, and chemical reactions.

*Borgnakke's Fundamentals of Thermodynamics
Heat Transfer*

*Loose Leaf for Thermodynamics: An Engineering Approach
Treatise on Thermodynamics*

Applied Thermodynamics

A brand new book, **FUNDAMENTALS OF CHEMICAL ENGINEERING THERMODYNAMICS** makes the abstract subject of chemical engineering thermodynamics more accessible to undergraduate

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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**

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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.

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Here is a comprehensive and comprehensible treatment of engineering thermodynamics from its theoretical foundations to its applications in real situations. The thermodynamics presented will prepare students for later courses in fluid mechanics and heat transfer, and practicing engineers will find the applications helpful in their professional work. The book is appropriate for an introductory undergraduate course in thermodynamics and for a

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subsequent course in thermodynamic applications. The chapters dealing with steam power plants, internal combustion engines, and HVAC are unmatched. The introductory chapter on turbomachinery is also unique. A thorough development of the second law of thermodynamics is provided in chapters 7-9. The ramifications of the second law receive thorough discussion; the student not only performs calculations, but understands the implications of the calculated results. Computer models created in TK Solver accompany each chapter and are particularly useful in the application

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areas. The TK Solver files provided with the book can be used as written or modified and merged into models developed to analyze new problems. The book has two particularly important strengths: its readability and the depth of its treatment of applications. The readability will make the content understandable to the average students; the depth in applications will make the book suitable for applied upper-level courses as well.

"The fourth edition of Elements of Chemical Reaction Engineering is a completely revised version of the book. It combines authoritative coverage of the

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principles of chemical reaction engineering with an unsurpassed focus on critical thinking and creative problem solving, employing open-ended questions and stressing the Socratic method. Clear and organized, it integrates text, visuals, and computer simulations to help readers solve even the most challenging problems through reasoning, rather than by memorizing equations."--BOOK JACKET.

Mechanical Engineering

Heat And Thermodynamics

Volume 2: Advanced Fluid Mechanics and
Thermodynamic Fundamentals

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Energy, Environment and Sustainable Development
Ugly's Electrical References, 2017 Edition
A Computer Approach (SI Units Version)

This Book Presents A Systematic Account Of The Concepts And Principles Of Engineering Thermodynamics And The Concepts And Practices Of Thermal Engineering. The Book Covers Basic Course Of Engineering Thermodynamics And Also Deals With The Advanced Course Of Thermal Engineering. This Book Will Meet The Requirements Of The Undergraduate Students Of Engineering And Technology Undertaking The Compulsory Course Of Engineering Thermodynamics. The Subject Matter Of Book Is Sufficient

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For The Students Of Mechanical Engineering/Industrial-Production Engineering, Aeronautical Engineering, Undertaking Advanced Courses In The Name Of Thermal Engineering/Heat Engineering/ Applied Thermodynamics Etc Presentation Of The Subject Matter Has Been Made In Very Simple And Understandable Language. The Book Is Written In SI System Of Units And Each Chapter Has Been Provided With Sufficient Number Of Typical Numerical Problems Of Solved And Unsolved Questions With Answers.

The 4th Edition of Cengel & Boles Thermodynamics:An Engineering Approach takes thermodynamics education to next level through its intuitive and innovative approach. A long-time favorite among students and instructors alike

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because of its highly engaging, student-oriented conversational writing style, this book is now the to most widely adopted thermodynamics text in the U.S. and in the world.

The definitive text/reference for students, researchers and practicing engineers This book provides comprehensive coverage on refrigeration systems and applications, ranging from the fundamental principles of thermodynamics to food cooling applications for a wide range of sectoral utilization. Energy and exergy analyses as well as performance assessments through energy and exergy efficiencies and energetic and exergetic coefficients of performance are explored, and numerous analysis techniques, models,

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correlations and procedures are introduced with examples and case studies. There are specific sections allocated to environmental impact assessment and sustainable development studies. Also featured are discussions of important recent developments in the field, including those stemming from the author's pioneering research.

Refrigeration is a uniquely positioned multi-disciplinary field encompassing mechanical, chemical, industrial and food engineering, as well as chemistry. Its wide-ranging applications mean that the industry plays a key role in national and international economies. And it continues to be an area of active research, much of it focusing on making technology as environmentally friendly and sustainable as

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possible without compromising cost efficiency and effectiveness. This substantially updated and revised edition of the classic text/reference now features two new chapters devoted to renewable-energy-based integrated refrigeration systems and environmental impact/sustainability assessment. All examples and chapter-end problems have been updated and include conversion factors and the thermophysical properties of an array of materials. Provides a solid foundation in the fundamental principles and the practical applications of refrigeration technologies. Examines fundamental aspects of thermodynamics, refrigerants, as well as energy and exergy analyses and energy and exergy based performance assessment criteria and approaches. Introduces environmental

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impact assessment methods and sustainability evaluation of refrigeration systems and applications Covers basic and advanced (and hence integrated) refrigeration cycles and systems, as well as a range of novel applications Discusses crucial industrial, technical and operational problems, as well as new performance improvement techniques and tools for better design and analysis Features clear explanations, numerous chapter-end problems and worked-out examples Refrigeration Systems and Applications, Third Edition is an indispensable working resource for researchers and practitioners in the areas of Refrigeration and Air Conditioning. It is also an ideal textbook for graduate and senior undergraduate students in mechanical, chemical,

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biochemical, industrial and food engineering disciplines. The world's reliance on existing sources of energy and their associated detrimental impacts on the environment- whether related to poor air or water quality or scarcity, impacts on sensitive ecosystems and forests and land use - have been documented and articulated over the last three decades. What is needed by the world is a set of credible energy solutions that would lead us to a balance between economic growth and a sustainable environment. This book provides an open platform to establish and share knowledge developed by scholars, scientists and engineers from all over the world about various viable paths to a future of sustainable energy. It has collected a number of intellectually stimulating articles that address

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issues ranging from public policy formulation to technological innovations for enhancing the development of sustainable energy systems. It will appeal to stakeholders seeking guidance to pursue the paths to sustainable energy.

Elements of Chemical Reaction Engineering

Fundamentals of Thermal-fluid Sciences

A HEAT TRANSFER TEXTBOOK

Loose Leaf Thermodynamics: An Engineering Approach with Student Resources DVD

"This text is an abbreviated version of standard thermodynamics, fluid mechanics, and heat transfer texts, covering topics that engineering students are

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most likely to need in their professional lives"-- In this book fluid mechanics and thermodynamics (F&T) are approached as interwoven, not disjoint fields. The book starts by analyzing the creeping motion around spheres at rest: Stokes flows, the Oseen correction and the Lagerstrom-Kaplun expansion theories are presented, as is the homotopy analysis. 3D creeping flows and rapid granular avalanches are treated in the context of the shallow flow approximation, and it is demonstrated that uniqueness and stability deliver a natural transition to turbulence modeling at the zero, first order closure level. The difference-

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quotient turbulence model (DQTM) closure scheme reveals the importance of the turbulent closure schemes ' non-locality effects. Thermodynamics is presented in the form of the first and second laws, and irreversibility is expressed in terms of an entropy balance. Explicit expressions for constitutive postulates are in conformity with the dissipation inequality. Gas dynamics offer a first application of combined F&T. The book is rounded out by a chapter on dimensional analysis, similitude, and physical experiments.

Accompanying DVD-ROM contains the Limited Academic Version of EES (Engineering Equation

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Solver) software with scripted solutions to selected text problems.

CHEMICAL PROCESS CALCULATIONS