

Mechanical Operations By Anup K Swain

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Advances in Communication, Devices and Networking - Rabindranath Bera 2019-02-15

The book covers recent trends in the field of devices, wireless communication and networking. It presents the outcomes of the International Conference in Communication, Devices and Networking (ICCDN 2018), which was organized by the Department of Electronics and Communication Engineering, Sikkim Manipal Institute of Technology, Sikkim, India on 2-3 June, 2018. Gathering cutting-edge research papers prepared by researchers, engineers and industry professionals, it will help young and experienced scientists and developers alike to explore new perspectives, and offer them inspirations on addressing real-world problems in the field of electronics, communication, devices and networking.

Simulation Modeling and Analysis Averill M. Law 2007

Since the publication of the first edition in 1982, the goal of *Simulation Modeling and Analysis* has always been to provide a comprehensive, state-of-the-art, and technically correct treatment of all important aspects of a simulation study. The book strives to make this material understandable by the use of intuition and numerous figures, examples, and problems. It is equally well suited for use in university courses, simulation practice, and self study. The book is widely regarded as the "bible" of simulation and now has more than 100,000 copies in print. The book can serve as the primary text for a variety of courses; for example: *A first course in simulation at the junior, senior, or beginning-graduate-student

level in engineering, manufacturing, business, or computer science (Chaps. 1 through 4, and parts of Chaps. 5 through 9). At the end of such a course, the students will be prepared to carry out complete and effective simulation studies, and to take advanced simulation courses. *A second course in simulation for graduate students in any of the above disciplines (most of Chaps. 5 through 12). After completing this course, the student should be familiar with the more advanced methodological issues involved in a simulation study, and should be prepared to understand and conduct simulation research.

*An introduction to simulation as part of a general course in operations research or management science (part of Chaps. 1, 3, 5, 6, and 9).

Emerging Technologies in Data Mining and Information Security - Ajith Abraham

2018-09-01

The book features research papers presented at the International Conference on Emerging Technologies in Data Mining and Information Security (IEMIS 2018) held at the University of Engineering & Management, Kolkata, India, on February 23-25, 2018. It comprises high-quality research by academics and industrial experts in the field of computing and communication, including full-length papers, research-in-progress papers, case studies related to all the areas of data mining, machine learning, IoT and information security.

To Cook a Continent - Nnimmo Bassey 2012

Arguing that the climate crisis confronting the world today is rooted mainly in the wealthy economies' abuse of fossil fuels, indigenous

forests, and global commercial agriculture, this important book investigates how Africa has been exploited and how Africans should respond for the good of all. As it examines the oil industry in Africa and probes the causes of global warming, this record warns of its insidious impacts and explores false solutions. Demonstrating that the issues around natural resource exploitation, corporate profiteering, and climate change must be considered together if the planet is to be saved, the book suggests how Africa can overcome the crises of environment and global warming.

West Virginia Blue Book - 1916

The Alcohol Textbook - Kathryn Ann Jacques
2003

Innovative Technologies for the Treatment of Industrial Wastewater - Shirish H. Sonawane
2017-12-01

This book highlights advances in sustainable wastewater treatment technologies, particularly biological wastewater treatment, cavitation-based treatment, hybrid water treatment, membrane technologies, advanced oxidation processes, and adsorption. The book focuses on a variety of advanced treatment techniques that are useful for the degradation of organic components, dyes, heavy metals effluent, etc. in wastewater. Industrial wastewater consists of variety of discharges based on the type of industry, such as the dairy/food industries, which generate more fats and high BOD value with variation in the pH value, while the electroplating industry may expel more inorganic matter and dissolved solids. The oil extraction industries will have more solvents contained in the effluent, and dyes and textiles industry create a higher organic load with high TDS. Hence, every type of manufacturing industry needs a different method for the treatment of its effluents. Looking at the use of intensified chemical processes in order to make cleaner environment, Innovative Technologies for the Treatment of Industrial Wastewater explores the new and innovative methods for pollutant removal that will prove useful for a variety of industries. Conventional wastewater treatment processes require a significant amount of energy and involve expensive

equipment and maintenance. Sustainable wastewater treatment technologies, however, involve less generation of energy and employ more economically feasible treatment methods, requiring less equipment and fewer maintenance costs. Looking at the use of intensified chemical processes in order to make a cleaner environment, this volume explores new and innovative methods for pollutant removal that will prove useful for a variety of industries. This book highlights advances in sustainable wastewater treatment technologies, particularly biological wastewater treatment, cavitation-based treatment, hybrid water treatment, membrane technologies, advanced oxidation processes, and adsorption.

Advances in Energy Research, Vol. 2 - Suneet Singh
2020-04-30

This book presents selected papers from the 6th International Conference on Advances in Energy Research (ICAER 2017), which cover topics ranging from energy optimization, generation, storage and distribution, and emerging technologies, to energy management, policy, and economics. The book is inter-disciplinary in scope and addresses a host of different areas relevant to energy research, making it of interest to scientists, policymakers, students, economists, rural activists, and social scientists alike.

Proceedings of the 3rd International Conference on Frontiers of Intelligent Computing: Theory and Applications (FICTA) 2014 - Suresh Chandra Satapathy
2014-10-17

This volume contains 95 papers presented at FICTA 2014: Third International Conference on Frontiers in Intelligent Computing: Theory and Applications. The conference was held during 14-15, November, 2014 at Bhubaneswar, Odisha, India. This volume contains papers mainly focused on Data Warehousing and Mining, Machine Learning, Mobile and Ubiquitous Computing, AI, E-commerce & Distributed Computing and Soft Computing, Evolutionary Computing, Bio-inspired Computing and its Applications.

Materials Development and Processing for Biomedical Applications - Savaş Kaya
2022-04-06

Materials Development and Processing for

Biomedical Applications focuses on various methods of manufacturing, surface modifications, and advancements in biomedical applications. This book examines in detail about five different aspects including, materials properties, development, processing, surface coatings, future perspectives and fabrication of advanced biomedical devices. Fundamental aspects are discussed to better understand the processing of various biomedical materials such as metals, ceramics, polymers, composites, etc. A wide range of surface treatments are covered in this book that will be helpful for the readers to understand the importance of surface treatments and their future perspectives. Additional Features Include: Examines various properties of biomedical materials at the beginning in several chapters which will enrich the fundamental knowledge of the readers. Discusses advancements in various fields of biomedical applications. Provides a glimpse of characterization techniques for the evaluation of material properties. Addresses biocompatibility, biocorrosion, and tribocorrosion. This book explores new and novel strategies for the development of materials and their biomedical applications. It will serve as a comprehensive resource for both students and scientists working in materials and biomedical sciences.

Economics of the 1% John Weeks 2014-01-20
How much do economists really know? In most cases, they claim to have profound knowledge but in fact understand little and obscure almost everything. Most people are convinced that economics should be left to the 'experts', when they themselves are perfectly capable of understanding it. This book explains that mainstream economics serves the interests of the rich through its logical inconsistency and unabashedly reactionary conclusions. John F. Weeks exposes the myths of mainstream economics and explains in straightforward language why current policies fail to serve the vast majority of people in the United States, Europe and elsewhere. Their failure to serve the interests of the many results from their devoted service to the few.

Sustainable Sanitation for All - Naomi Vernon 2016-09-30

"Sustainable Sanitation for All" describes the landscape of sustainability of CLTS as it is now,

and reflects on key aspects, challenges, innovations and insights around sustainability for the future. It clarifies a future research agenda and gaps in current knowledge, and makes recommendations on policy and practice.

Emerging Technologies in Data Mining and Information Security - Ajith Abraham

2018-12-12

This book features research papers presented at the International Conference on Emerging Technologies in Data Mining and Information Security (IEMIS 2018) held at the University of Engineering & Management, Kolkata, India, on February 23–25, 2018. It comprises high-quality research work by academicians and industrial experts in the field of computing and communication, including full-length papers, research-in-progress papers, and case studies related to all the areas of data mining, machine learning, Internet of Things (IoT) and information security.

Reliability, Safety and Hazard Assessment for Risk-Based Technologies - Prabhakar V. Varde 2020-08-31

This volume presents selected papers from the International Conference on Reliability, Safety, and Hazard. It presents the latest developments in reliability engineering and probabilistic safety assessment, and brings together contributions from a diverse international community and covers all aspects of safety, reliability, and hazard assessment across a host of interdisciplinary applications. This book will be of interest to researchers in both academia and the industry.

Techno-Societal 2018 - Prashant M. Pawar 2019-11-06

This book, divided in two volumes, originates from Techno-Societal 2018: the 2nd International Conference on Advanced Technologies for Societal Applications, Maharashtra, India, that brings together faculty members of various engineering colleges to solve Indian regional relevant problems under the guidance of eminent researchers from various reputed organizations. The focus is on technologies that help develop and improve society, in particular on issues such as the betterment of differently abled people, environment impact, livelihood, rural employment, agriculture, healthcare, energy,

transport, sanitation, water, education. This conference aims to help innovators to share their best practices or products developed to solve specific local problems which in turn may help the other researchers to take inspiration to solve problems in their region. On the other hand, technologies proposed by expert researchers may find applications in different regions. This offers a multidisciplinary platform for researchers from a broad range of disciplines of Science, Engineering and Technology for reporting innovations at different levels.
Mechanical Operations, HSwain 2011

Science and Life - Robert Andrews Millikan 1924

A clipping from the Bloomington (Ind.) Star-Courier, dated Aug. 27, 1956, is a column by the editor titled "The Stroller" and headlined "Science of Life." In it, the writer places the life and work of the late Dr. Alfred Kinsey in the context of other life sciences, and especially the work of colleagues at Indiana University.

Handbook of Industrial Chemistry and Biotechnology - James A. Kent 2013-01-13

Substantially revising and updating the classic reference in the field, this handbook offers a valuable overview and myriad details on current chemical processes, products, and practices. No other source offers as much data on the chemistry, engineering, economics, and infrastructure of the industry. The Handbook serves a spectrum of individuals, from those who are directly involved in the chemical industry to others in related industries and activities. It provides not only the underlying science and technology for important industry sectors, but also broad coverage of critical supporting topics. Industrial processes and products can be much enhanced through observing the tenets and applying the methodologies found in chapters on Green Engineering and Chemistry (specifically, biomass conversion), Practical Catalysis, and Environmental Measurements; as well as expanded treatment of Safety, chemistry plant security, and Emergency Preparedness. Understanding these factors allows them to be part of the total process and helps achieve optimum results in, for example, process development, review, and modification. Important topics in the energy field, namely

nuclear, coal, natural gas, and petroleum, are covered in individual chapters. Other new chapters include energy conversion, energy storage, emerging nanoscience and technology. Updated sections include more material on biomass conversion, as well as three chapters covering biotechnology topics, namely, Industrial Biotechnology, Industrial Enzymes, and Industrial Production of Therapeutic Proteins.

Polymer Composites, Macro- and Microcomposites - Sabu Thomas 2012-04-30

The first systematic reference on the topic with an emphasis on the characteristics and dimension of the reinforcement. This first of three volumes, authored by leading researchers in the field from academia, government, industry, as well as private research institutions around the globe, focuses on macro and micro composites. Clearly divided into three sections, the first offers an introduction to polymer composites, discussing the state of the art, new challenges, and opportunities of various polymer composite systems, as well as preparation and manufacturing techniques. The second part looks at macro systems, with an emphasis on fiber reinforced polymer composites, textile composites, and polymer hybrid composites. Likewise, the final section deals with micro systems, including micro particle reinforced polymer composites, the synthesis, surface modification and characterization of micro particulate fillers and flakes as well as filled polymer micro composites, plus applications and the recovery, recycling and life cycle analysis of synthetic polymeric composites.

The Mystics, Ascetics, and Saints of India - John Campbell Oman 1999-01-01

This Elibron Classics title is a reprint of the original edition published by T. Fisher Unwin in London, 1905.

Innovations and Interdisciplinary Solutions for Underserved Areas - Jessica P. R. Thorn 2020-08-05

This book constitutes the refereed post-conference proceedings of the 4th EAI International Conference on Innovations and Interdisciplinary Solutions for Underserved Areas, InterSol 2020, held in Nairobi, Kenya, in March 2020. Due to the COVID-19 pandemic the conference is postponed to a later date in 2020.

The 20 papers presented were selected from 50 submissions and issue different problems in underserved and unserved areas. They face problems in almost all sectors such as energy, water, communication, climate, food, education, transportation, social development, and economic growth.

The Physics of Semiconductor Devices - R. K. Sharma 2019-01-31

This book disseminates the current knowledge of semiconductor physics and its applications across the scientific community. It is based on a biennial workshop that provides the participating research groups with a stimulating platform for interaction and collaboration with colleagues from the same scientific community. The book discusses the latest developments in the field of III-nitrides; materials & devices, compound semiconductors, VLSI technology, optoelectronics, sensors, photovoltaics, crystal growth, epitaxy and characterization, graphene and other 2D materials and organic semiconductors.

Introduction to Algebraic Independence Theory - Yuri V. Nesterenko 2003-07-01

In the last five years there has been very significant progress in the development of transcendence theory. A new approach to the arithmetic properties of values of modular forms and theta-functions was found. The solution of the Mahler-Manin problem on values of modular function $j(\tau)$ and algebraic independence of numbers π and e^π are most impressive results of this breakthrough. The book presents these and other results on algebraic independence of numbers and further, a detailed exposition of methods created in last the 25 years, during which commutative algebra and algebraic geometry exerted strong catalytic influence on the development of the subject.

HEAT TRANSFER - DUTTA, BINAY K. 2000-01-01

This textbook is intended for courses in heat transfer for undergraduates, not only in chemical engineering and related disciplines of biochemical engineering and chemical technology, but also in mechanical engineering and production engineering. The author provides the reader with a very thorough account of the fundamental principles and their applications to engineering practice, including a survey of the

recent developments in heat transfer equipment. The three basic modes of heat transfer - conduction, convection and radiation - have been comprehensively analyzed and elucidated by solving a wide range of practical and design-oriented problems. A whole chapter has been devoted to explain the concept of the heat transfer coefficient to give a feel of its importance in tackling problems of convective heat transfer. The use of the important heat transfer correlations has been illustrated with carefully selected examples.

Methods of Electronic Structure Theory - Henry F. Schaefer 2013-06-29

These two volumes deal with the quantum theory of the electronic structure of molecules. Implicit in the term *ab initio* is the notion that approximate solutions of Schrödinger's equation are sought "from the beginning," i. e., without recourse to experimental data. From a more pragmatic viewpoint, the distinguishing feature of *ab initio* theory is usually the fact that no approximations are involved in the evaluation of the required molecular integrals. Consistent with current activity in the field, the first of these two volumes contains chapters dealing with methods per se, while the second concerns the application of these methods to problems of chemical interest. In a sense, the motivation for these volumes has been the spectacular recent success of *ab initio* theory in resolving important chemical questions. However, these applications have only become possible through the less visible but equally important efforts of those developing new theoretical and computational methods and models. Henry F Schaefer VII Contents Contents of Volume 4 XIX Chapter 1. Gaussian Basis Sets for Molecular Calculations Thom. H. Dunning, Jr. and P. Jeffrey Hay 1. Introduction 1 1. 1. Slater Functions and the Hydrogen Molecule 1 1. 2. Gaussian Functions and the Hydrogen Atom 3 2. Hartree-Fock Calculations on the First Row Atoms 5 2. 1. Valence States of the First Row Atoms 6 7 2. 2. Rydberg States of the First Row Atoms 9 2. 3.

A Short History of the Mughal Empire Michael Fisher 2015-10-01

The Mughal Empire dominated India politically, culturally, socially, economically and environmentally, from its foundation by Babur, a

Central Asian adventurer, in 1526 to the final trial and exile of the last emperor Bahadur Shah Zafar at the hands of the British in 1858.

Throughout the empire's three centuries of rise, preeminence and decline, it remained a dynamic and complex entity within and against which diverse peoples and interests conflicted. The empire's significance continues to be controversial among scholars and politicians with fresh and exciting new insights, theories and interpretations being put forward in recent years. This book engages students and general readers with a clear, lively and informed narrative of the core political events, the struggles and interactions of key individuals, groups and cultures, and of the contending historiographical arguments surrounding the Mughal Empire.

Unit Operations - I Ka Gavhane 2014-11

Introduction - Conduction - Convection - Radiation - Heat Exchange Equipments - Evaporation - Diffusion - Distillation - Gas Absorption - Liquid Liquid Extraction - Crystallisation - Drying - Appendix I Try yourself - Appendix II Thermal conductivity data - Appendix III Steam tables

Introduction to Chemical Engineering -

Walter Lucius Badger 1955

Introductory college text with emphasis on unit operation.

Hughes, Mansel & Webster's Benign

Disorders and Diseases of the Breast - R. E.

Mansel 2009-01-01

By far the majority of women presenting with a breast complaint will be diagnosed as having a benign rather than malignant condition. Despite this, clinical and research interest has always favoured breast cancer, and few publications have attempted to cover benign breast disorders as an independent entity focusing instead on benign breast disease in relation to breast cancer and none provide the complete and pragmatic coverage found in this text. Hughes, Mansel and Webster's Benign Disorders and Diseases of the Breast represents the distillation of over 35 years of clinical experience and research in the Cardiff Clinic and is unique in its depth of coverage of the entire spectrum of benign breast complaints. The third edition of this critically acclaimed book provides practical and detailed management guidelines. Relevant

investigations are discussed and clear advice is given for the most effective treatment strategies in each condition, including dealing with treatment failures and recurring problems. The underlying pathology and physiology are also discussed from the clinician's viewpoint to help understand clinical presentations and response to treatment.

Combined Quantum Mechanical and Molecular Mechanical Methods - Jiali Gao 1998

Combined quantum mechanical and molecular mechanical methods (QM/MM) are one of the most promising approaches for quantum mechanical calculations of chemical processes in solution and in enzymes. In such a method a relatively small part of the system (e.g., the solute) is analyzed through quantum mechanics and the remainder (e.g., the solvent) is represented through molecular mechanics, thus combining the accuracy of one method with the efficiency of the other. This book provides an in-depth survey of the methods and their applications in chemistry and biochemistry.

Electronic Systems and Intelligent Computing - Pradeep Kumar Mallick

2020-09-22

This book presents selected, high-quality research papers from the International Conference on Electronic Systems and Intelligent Computing (ESIC 2020), held at NIT Yupia, Arunachal Pradesh, India, on 2 - 4 March 2020. Discussing the latest challenges and solutions in the field of smart computing, cyber-physical systems and intelligent technologies, it includes papers based on original theoretical, practical and experimental simulations, developments, applications, measurements, and testing. The applications and solutions featured provide valuable reference material for future product development.

Mechanical Operations - Kiran D Patil 2012-09

Properties and Handling of Particulate Solids, Conveyors, Mixing of Solids and Pastes, Size Reduction, Mechanical Separations: Screening, Filtration, Separation Based on Motion of Particulate through the Fluids, Mixing and Agitation, Fluidization, Beneficiation Process

Non-Conventional Machining in Modern Manufacturing Systems - Kumar, Kaushik

2018-09-21

Continuous improvements in machining practices have created opportunities for businesses to develop more streamlined processes. This not only leads to higher success in day-to-day production, but also increases the overall success of businesses. *Non-Conventional Machining in Modern Manufacturing Systems* provides emerging research exploring the theoretical and practical aspects of technological advancements in industrial environments and applications in manufacturing. Featuring coverage on a broad range of topics such as optimization techniques, electrical discharge machining, and hot machining, this book is ideally designed for business managers, engineers, business professionals, researchers, and academicians seeking current research on non-conventional and technologically advanced machining processes.

Nanotechnology and the Environment -
Mousumi Sen 2020-12-02

Nanotechnology is a vibrant area of research and a growing industry. The core scientific principles and applications of this interdisciplinary field bring together chemists, physicists, materials scientists, and engineers to meet the potential future challenges for sustainable development through new technologies and preparation of advanced materials with sustainable environmental protection. This book on Nanotechnology and the Environment includes the design and the sophisticated fabrication of nanomaterials along with their potential energy and environmental applications. This book is a significant contribution towards the development of the knowledge for all advanced undergraduate, graduate level students, researchers, and professional engineers leading in the fields of nanotechnology, nanochemistry, macromolecular science and those who have interest in energy and environmental science. *The Civil Engineering Handbook* - W.F. Chen 2002-08-29

First published in 1995, the award-winning Civil Engineering Handbook soon became known as the field's definitive reference. To retain its standing as a complete, authoritative resource, the editors have incorporated into this edition the many changes in techniques, tools, and materials that over the last seven years have

found their way into civil engineering research and practice. The Civil Engineering Handbook, Second Edition is more comprehensive than ever. You'll find new, updated, and expanded coverage in every section. In fact, more than 1/3 of the handbook is new or substantially revised. In particular you'll find increased focus on computing reflecting the rapid advances in computer technology that has revolutionized many aspects of civil engineering. You'll use it as a survey of the field, you'll use it to explore a particular subject, but most of all you'll use The Civil Engineering Handbook to answer the problems, questions, and conundrums you encounter in practice.

Proceedings of the International Conference on Paradigms of Computing, Communication and Data Sciences - Mayank Dave 2021-02-19

This book presents best selected papers presented at the International Conference on Paradigms of Computing, Communication and Data Sciences (PCCDS 2020), organized by National Institute of Technology, Kurukshetra, India, during 1-3 May 2020. It discusses high-quality and cutting-edge research in the areas of advanced computing, communications and data science techniques. The book is a collection of latest research articles in computation algorithm, communication and data sciences, intertwined with each other for efficiency.

PRINCIPLES OF MASS TRANSFER AND SEPERATION PROCESSES - BINAY K. DUTTA 2007-01-21

This textbook is targetted to undergraduate students in chemical engineering, chemical technology, and biochemical engineering for courses in mass transfer, separation processes, transport processes, and unit operations. The principles of mass transfer, both diffusional and convective have been comprehensively discussed. The application of these principles to separation processes is explained. The more common separation processes used in the chemical industries are individually described in separate chapters. The book also provides a good understanding of the construction, the operating principles, and the selection criteria of separation equipment. Recent developments in equipment have been included as far as possible. The procedure of equipment design and sizing has been illustrated by simple examples. An

overview of different applications and aspects of membrane separation has also been provided. 'Humidification and water cooling', necessary in every process industry, is also described.

Finally, elementary principles of 'unsteady state diffusion' and mass transfer accompanied by a chemical reaction are covered.

SALIENT FEATURES :

- A balanced coverage of theoretical principles and applications.
- Important recent developments in mass transfer equipment and practice are included.
- A large number of solved problems of varying levels of complexities showing the applications of the theory are included.
- Many end-chapter exercises.
- Chapter-wise multiple choice questions.
- An Instructors manual for the teachers.

Techno-Societal 2018 - Prashant M. Pawar
2019-11-06

This book, divided in two volumes, originates from Techno-Societal 2018: the 2nd International Conference on Advanced Technologies for Societal Applications, Maharashtra, India, that brings together faculty members of various engineering colleges to solve Indian regional relevant problems under the guidance of eminent researchers from various reputed organizations. The focus is on technologies that help develop and improve society, in particular on issues such as the betterment of differently abled people, environment impact, livelihood, rural employment, agriculture, healthcare, energy, transport, sanitation, water, education. This conference aims to help innovators to share their best practices or products developed to solve specific local problems which in turn may help the other researchers to take inspiration to solve problems in their region. On the other hand, technologies proposed by expert researchers may find applications in different regions. This offers a multidisciplinary platform for researchers from a broad range of disciplines of Science, Engineering and Technology for reporting innovations at different levels.

Advances in Smart Grid and Renewable Energy - Karma Sonam Sherpa 2022-01-06

This book comprises select proceedings of the international conference ETAEERE 2020, and primarily focuses on renewable energy resources and smart grid technologies. The book

provides valuable information on the technology and design of power grid integration on microgrids of green energy sources. Some of the topics covered include solar PV array, hybrid microgrid, daylight harvesting, green computing, photovoltaic applications, nanogrid applications, AC/DC/AC converter for wind energy systems, solar photovoltaic panels, PEM fuel cell system, and biogas run dual-fueled diesel engine. The contents of this book will be useful for researchers and practitioners working in the areas of smart grids and renewable energy generation, distribution, and management.

A TEXTBOOK OF CHEMICAL ENGINEERING THERMODYNAMICS - K. V. NARAYANAN 2013-01-11

Designed as an undergraduate-level textbook in Chemical Engineering, this student-friendly, thoroughly class-room tested book, now in its second edition, continues to provide an in-depth analysis of chemical engineering thermodynamics. The book has been so organized that it gives comprehensive coverage of basic concepts and applications of the laws of thermodynamics in the initial chapters, while the later chapters focus at length on important areas of study falling under the realm of chemical thermodynamics. The reader is thus introduced to a thorough analysis of the fundamental laws of thermodynamics as well as their applications to practical situations. This is followed by a detailed discussion on relationships among thermodynamic properties and an exhaustive treatment on the thermodynamic properties of solutions. The role of phase equilibrium thermodynamics in design, analysis, and operation of chemical separation methods is also deftly dealt with. Finally, the chemical reaction equilibria are skillfully explained. Besides numerous illustrations, the book contains over 200 worked examples, over 400 exercise problems (all with answers) and several objective-type questions, which enable students to gain an in-depth understanding of the concepts and theory discussed. The book will also be a useful text for students pursuing courses in chemical engineering-related branches such as polymer engineering, petroleum engineering, and safety and environmental engineering. New to This Edition

- More Example Problems and Exercise Questions in each chapter
- Updated section on Vapour-Liquid Equilibrium in Chapter 8 to

- highlight the significance of equations of state approach
- GATE Questions up to 2012 with answers