

Turton Ysis Synthesis And Design Of Chemical Processes

Catalysis, Green Chemistry and Sustainable Energy: New Technologies for Novel Business Opportunities offers new possibilities for businesses who want to address the current global transition period to adopt low carbon and sustainable energy production. This comprehensive source provides an integrated view of new possibilities within catalysis and green chemistry in an economic context, showing how these potential new technologies may become useful to business. Fundamentals and specific examples are included to guide the transformation of idea to innovation and business. Offering an overview of the new possibilities for creating business in catalysis, energy and green chemistry, this book is a beneficial tool for students, researchers and academics in chemical and biochemical engineering. Discusses new developments in catalysis, energy and green chemistry from the perspective of converting ideas to innovation and business Presents case histories, preparation of business plans, patent protection and IP rights, creation of start-ups, research funds and successful written proposals Offers an interdisciplinary approach combining science and business

A teacher ' s ability to manage the classroom strongly influences the quality of teaching and learning that can be accomplished. Among the most pressing concerns for inexperienced teachers is classroom management, a concern of equal importance to the general public in light of behavior problems and breakdowns in discipline that grab newspaper headlines. But classroom management is not just about problems and what to do when things go wrong and chaos erupts. It ' s about how to run a classroom so as to elicit the best from even the most courteous group of students. An array of skills is needed to produce such a learning environment. The SAGE Encyclopedia of Classroom Management raises issues and introduces evidence-based, real-world strategies for creating and maintaining well-managed classrooms where learning thrives. Students studying to become teachers will need to develop their own classroom management strategies consistent with their own philosophies of teaching and learning. It is hoped that this work will help open their eyes to the range of issues and the array of skills they might integrate into their unique teaching styles. Key Features: 325 signed entries organized in A-to-Z fashion across two volumes Reader's Guide grouping related entries thematically References/Further Readings and Cross-References sections Chronology in the back matter Resource Guide in the appendix This encyclopedia is an excellent scholarly source for students who are pursuing a degree or position in the field of education. The SAGE Encyclopedia of Classroom Management is an ideal source for all academic and public libraries.

Genetic programming (GP) is a systematic, domain-independent method for getting computers to solve problems automatically starting from a high-level statement of what needs to be done. Using ideas from natural evolution, GP starts from an ooze of random computer programs, and progressively refines them through processes of mutation and sexual recombination, until high-fitness solutions emerge. All this without the user having to know or specify the form or structure of solutions in advance. GP has generated a plethora of human-competitive results and applications, including novel scientific discoveries and patentable inventions. This unique overview of this exciting technique is written by three of the most active scientists in GP. See www.gp-field-guide.org.uk for more information on the book.

Combining 25 years of clinical, research and teaching experience, Dr Lisa Harvey provides an innovative 5-step approach to the physiotherapy management of people with spinal cord injury. Based on the International Classification of Functioning, this approach emphasises the importance of setting goals which are purposeful and meaningful to the patient. These goals are related to performance of motor tasks analysed in terms of 6 key impairments. The assessment and treatment performance of each of these impairments for people with spinal cord injury is described in the following chapters: training motor tasks strength training contracture management pain management respiratory management cardiovascular fitness training Dr Harvey develops readers' problem-solving skills equipping them to manage all types of spinal cord injuries. Central to these skills is an understanding of how people with different patterns of paralysis perform motor tasks and the importance of differentmuscles for motor tasks such as: transfers and bed mobility of people wheelchair mobility hand function for people with tetraplegia standing and walking with lower limb paralysis This book is for students and junior physiotherapists with little or no experience in the area of spinal cord injury but with a general understanding of the principles of physiotherapy. It is also a useful tool for experienced clinicians, including those keen to explore the evidence base that supports different physiotherapy interventions.

A Strategic Knowledge Compendium for India

Tropical Montane Cloud Forests

Product-Driven Process Design

Analysis of Urban Growth and Sprawl from Remote Sensing Data

Integrated Design and Simulation of Chemical Processes

Process Systems Engineering for Biofuels Development

Product-driven process design – from molecule to enterprise provides process engineers and process engineering students with access to a modern and stimulating methodology to process and product design. Throughout the book the links between product design and process design become evident while the reader is guided step-by-step through the different stages of the intertwining product and process design activities. Both molecular and enterprise-wide considerations in design are introduced and addressed in detail. Several examples and case studies in emerging areas such as bio- and food-systems, pharmaceuticals and energy are discussed and presented. This book is an excellent guide and companion for undergraduate, graduate students as well as professional practitioners.

Master process control hands on, through practical examples and MATLAB(R) simulations This is the first complete introduction to process control that fully integrates software tools--enabling professionals and students to master critical techniques hands on, through computer simulations based on the popular MATLAB environment. Process Control: Modeling, Design, and Simulation teaches the field's most important techniques, behaviors, and control problems through practical examples, supplemented by extensive exercises--with detailed derivations, relevant software files, and additional techniques available on a companion Web site. Coverage includes: Fundamentals of process control and instrumentation, including objectives, variables, and block diagrams Methodologies for developing dynamic models of chemical processes Dynamic behavior of linear systems: state space models, transfer function-based models, and more Feedback control; proportional, integral, and derivative (PID) controllers; and closed-loop stability analysis Frequency response analysis techniques for evaluating the robustness of control systems Improving control loop performance: internal model control (IMC), automatic tuning, gain scheduling, and enhancements to improve disturbance rejection Split-range, selective, and override strategies for switching among inputs or outputs Control loop interactions and multivariable controllers An introduction to model predictive control (MPC) Bequette walks step by step through the development of control instrumentation diagrams for an entire chemical process, reviewing common control strategies for individual unit operations, then discussing strategies for integrated systems. The book also includes 16 learning modules demonstrating how to use MATLAB and SIMULINK to solve several key control problems, ranging from robustness analyses to biochemical reactors, biomedical problems to multivariable control.

This comprehensive work shows how to design and develop innovative, optimal and sustainable chemical processes by applying the principles of process systems engineering, leading to integrated sustainable processes with 'green' attributes. Generic systematic methods are employed, supported by intensive use of computer simulation as a powerful tool for mastering the complexity of physical models. New to the second edition are chapters on product design and batch processes with applications in specialty chemicals, process intensification methods for designing compact equipment with high energetic efficiency, plantwide control for managing the key factors affecting the plant dynamics and operation, health, safety and environment issues, as well as sustainability analysis for achieving high environmental performance. All chapters are completely rewritten or have been revised. This new edition is suitable as teaching material for Chemical Process and Product Design courses for graduate MSc students, being compatible with academic requirements world-wide. The inclusion of the newest design methods will be of great value to professional chemical engineers. Systematic approach to developing innovative and sustainable chemical processes Presents generic principles of process simulation for analysis, creation and assessment Emphasis on sustainable development for the future of process industries

With global wildlife populations and biodiversity riches in peril, it is obvious that innovative methods of addressing our planet's environmental problems are needed. But is “ the market ” the answer? Nature™ Inc. brings together cutting-edge research by respected scholars from around the world to analyze how “ neoliberal conservation ” is reshaping human – nature relations.

New Technologies for Novel Business Opportunities

Sustainability of Biofuel Production from Oil Palm Biomass

Analysis, Synthesis, and Design of Chemical Processes

Rural Wealth Creation

Cumulated Index Medicus

EPA 745-R.

Evolvable hardware (EHW) refers to hardware whose architecture/structure and functions change dynamically and autonomously in order to improve its performance in carrying out tasks. The only single resource presenting both the fundamentals, and the latest advances in the field, this book teaches the basics of reconfigurable devices, why they are necessary and how they are designed.

This revised, updated second edition provides an accessible, practical overview of major areas of technical development and clinical application in the field of neurorehabilitation movement therapy. The initial section provides a rationale for technology application in movement therapy by summarizing recent findings in neuroplasticity and motor learning. The following section then explains the state of the art in human-machine interaction requirements for clinical rehabilitation practice. Subsequent sections describe the ongoing revolution in robotic therapy for upper extremity movement and for walking, and then describe other emerging technologies including electrical stimulation, virtual reality, wearable sensors, and brain-computer interfaces. The promises and limitations of these technologies in neurorehabilitation are discussed. Throughout the book the chapters provide detailed practical information on state-of-the-art clinical applications of these devices following stroke, spinal cord injury, and other neurologic disorders. The text is illustrated throughout with photographs and schematic diagrams which serve to clarify the information for the reader. Neurorehabilitation Technology, Second Edition is a valuable resource for neurologists, biomedical engineers, roboticists, rehabilitation specialists, physiotherapists, occupational therapists and those training in these fields.

The book highlights recent developments in the field of spectroscopy by providing the readers with an updated and high-level of overview. The focus of this book is on the introduction to concepts of modern spectroscopic techniques, recent technological innovations in this field, and current examples of applications to molecules and materials relevant for academia and industry. The book will be beneficial to researchers from various branches of science and technology, and is intended to point them to modern techniques, which might be useful for their specific problems. Spectroscopic techniques, that are discussed include, UV-Visible absorption spectroscopy, XPS, Raman spectroscopy, SERS, TERS, CARS, IR absorption spectroscopy, SFG, LIBS, Quantum cascade laser (QCL) spectroscopy, fluorescence spectroscopy, ellipsometry, cavity-enhanced absorption spectroscopy, such as cavity ring-down spectroscopy (CRDS) and evanescent wave-CRDS both in gas and condensed phases, time-resolved spectroscopy etc. Applications introduced in the different chapters demonstrate the usefulness of the spectroscopic techniques for the characterization of fundamental properties of molecules, e.g. in connection with environmental impact, bio-activity, or usefulness for pharmaceutical drugs, and materials important e.g. for nano-science, nuclear chemistry, or bio-applications. The book presents how spectroscopic techniques can help to better understand substances, which have also great impact on questions of social and economic relevance (environment, alternative energy, etc.).

A comprehensive overview of current developments and applications in biofuels production Process Systems Engineering for Biofuels Development brings together the latest and most cutting-edge research on the production of biofuels. As the first book specifically devoted to process systems engineering for the production of biofuels, Process Systems Engineering for Biofuels Development covers theoretical, computational and experimental issues in biofuels process engineering. Written for researchers and postgraduate students working on biomass conversion and sustainable process design, as well as industrial practitioners and engineers involved in process design, modeling and optimization, this book is an indispensable guide to the newest developments in areas including: Enzyme-catalyzed biodiesel production Process analysis of biodiesel production (including kinetic modeling, simulation and optimization) The use of ultrasonification in biodiesel production Thermochemical processes for biomass transformation to biofuels Production of alternative biofuels In addition to the comprehensive overview of the subject of biofuels found in the Introduction of the book, the authors of various chapters have provided extensive discussions of the production and separation of biofuels via novel applications and techniques.

The Right of Publicity

Evolvable Hardware

Investigating Spoken English

Analysis, Synthesis and Design of Chemical Processes

Somalia, a Country Study

Modeling, Design, and Simulation

This volume gives an overview of the applications of organometallic chemistry in process chemistry relevant to the current topics in synthetic chemistry. This volume starts with an introduction on the historical development of organometallics in process chemistry and is followed by chapters dealing with the last five years' development in various organometallic reaction types such as the challenging cross coupling process, construction of 3.1.0 bicycles, pressure and transfer hydrogenations of historically challenging compounds such as esters, utilization of carbon dioxide for making organic compounds by flow process, drug synthesis and metal detection and scavenging in the finished APIs. A chapter by Colacot et.al., is also devoted to the process development and structural understanding of organometallic catalysts with particular emphasis to LnPd(0) catalysts. An academia – industry collaborated chapter on the use of water as a solvent for organometallic processes is included in this book.

Integrated Biorefineries: Design, Analysis, and Optimization examines how to create a competitive edge in biorefinery innovation through integration into existing processes and infrastructure. Leading experts from around the world working in design, synthesis, and optimization of integrated biorefineries present the various aspects of this complex

This book is the first to cover all aspects of using ammonia for energy - from production to last use. The book explains the fundamentals and basic concepts about hydrogen and ammonia before examining their production methods. Then it covers ammonia production and storage techniques. Furthermore, the book contains case studies that demonstrate the use of ammonia technology. Ammonia energy systems are explained, and the technologies and methods used with them are explained with illustrative examples. Finally, the book lays out future directions in the development of ammonia energy systems. It is expected that the book will be of interest to all researchers and professionals interested in new energy sources.

Until relatively recently the valuable tropical montane cloud forests (hereaf ter usually referred to as TMCFs) of the world had scarcely come under the assaults experienced by the downslope montane and lowland forests. TMCFs are not hospitable environments for human occupation, and their remoteness (except in places near Andean high mountain settlements and in the Ethiopian Highlands) and difficult terrain have given them de facto protection. The adjacent upper montane rain forests have indeed been under assault for timber, fuelwood, and for conversion to grazing and agriculture for many decades, even centuries in the Andes, but true cloud forest has only come under exploitation as these lower elevational resources have disappeared. They have also been "nibbled" at from above where there have been alpine grasslands under grazing pressure. Increasingly now, however, these cloud forest eco systems are being fragmented, reduced, and disturbed at an alarming rate. It is now becoming recognized that steps must be taken rapidly to increase our understanding of TMCF and to achieve their conservation, because: their water-capture function is extremely important to society; • their species endemism is high; they serve as refugia for endangered species being marginalized in these environments by increasingly transformed lower elevation ecosystems; they are relatively little studied; yet, their value to science is extremely high; they have low resilience to disturbance; vii viii Preface and many other reasons, which will be discussed subsequently in this publication.

Clinical Obesity in Adults and Children

Organometallics in Process Chemistry

Process Dynamics

Chemical Process Design and Simulation: Aspen Plus and Aspen Hysys Applications

Environmental Conservation in the Neoliberal Age

Basics, Instrumentation, and Applications

Computer aided process engineering (CAPE) tools have been very successfully used in process design and product engineering for a long time. In particular, simulation and modelling tools have enabled engineers to analyse and understand the behaviour of selected processes prior to building actual plants. The aim of design or retrofit of chemical processes is to produce profitably products that satisfy the societal needs, ensuring safe and reliable operation of each process, as well as minimising any effects on the environment. This involves the conceptual design or retrofit of plants and processes, novel manufacturing approaches, process/control system design interactions and operability, manufacturability, environmental and safety issues. Backed by current studies, this 2-volume set gives a comprehensive survey of the various approaches and latest developments on the use of CAPE in the process industry. An invaluable reference to the scientific and industrial community in the field of computer aided process and product engineering.

Comprehensive and informative, the extensively revised fifth edition of Occupational Therapy in Psychiatry and Mental Health is an accessible overview of occupational therapy in psychiatry, providing key information on a range of international models of occupational therapy as well as their practical applications. The fifth edition includes: • Case studies throughout to illustrate application of theory to practice • Coverage of key concepts and issues in occupational therapy • New material on emerging areas of practice • Comprehensive information on assessment and treatment for children, adolescents and adults, covering key mental health conditions Occupational Therapy in Psychiatry and Mental Health is an ideal resource for students in occupational therapy, newly qualified and experienced practitioners, and other allied health professionals seeking an up-to-date, globally relevant resource on psychiatry and mental health care.

There are many comprehensive design books, but none of them provide a significant number of detailed economic design examples of typically complex industrial processes. Most of the current design books cover a wide variety of topics associated with process design. In addition to discussing flowsheet development and equipment design, these textbooks go into a lot of detail on engineering economics and other many peripheral subjects such as written and oral skills, ethics, "green" engineering and product design. This book presents general process design principles in a concise readable form that can be easily comprehended by students and engineers when developing effective flow sheet and control structures. Ten detailed case studies presented illustrate an in-depth and quantitative way the application of these general principles. Detailed economic steady-state designs are developed that satisfy economic criterion such as minimize total annual cost of both capital and energy or return on incremental capital investment. Complete detailed flow sheets and Aspen Plus files are provided. Then conventional PI control structures are developed and tested for their ability to maintain product quality during disturbances. Complete Aspen Dynamics files are provided of the dynamic simulations.

In the crowded field of climate change reports, 'WDR 2010' uniquely: emphasizes development; takes an integrated look at adaptation and mitigation; highlights opportunities in the changing competitive landscape; and proposes policy solutions grounded in analytic work and in the context of the political economy of reform.

Privacy Reimagined for a Public World

Fluid Bed Technology in Materials Processing

From Molecule to Enterprise

Design, Analysis, and Optimization

A Practical Guide to Phonetics and Phonology Using Praat

Positron Emission Tomography

Combining coverage of the key concepts and tools within phonetics and phonology with a systematic introduction to Praat, this textbook provides a lively and engaging 'way in' to the discipline. The author first covers the fundamentals of the articulatory and acoustic aspects of speech and introduces Praat as the main tool for examining and visualising speech. Next, the unit of analysis is gradually expanded (from syllables to words to turns and dialogues) and excerpts of real dialogues exemplify the core concepts for discovering how speech works. The final part of the book brings all the concepts and notions together with commentaries to the transcription of several short excerpts of dialogues. This book will be essential reading for students on undergraduate courses in phonetics and phonology.

Highly Commended in the 2006 British Medical AssociationBook Awards (Endocrinology) This Second Edition brings together more than 20 internationallyrecognized experts in the field to provide a timely review ofcurrent knowledge. The text remains an invaluable resource for allhealthcare professionals involved in the care of patients who areobese. New features of this Second Edition include:

Addition of two new co-editors – Professor Bill Dietz,USA and Professor Ian Caterson, Australia Increased number of contributors from around the globe –providing a truly international perspective Includes new information about the causes of obesity, itscomplications and new (and novel) methods of prevention andtreatment Reorganized into sections that address obesity and its socialand cultural aspects,

biology, associated diseases, life stages(pediatric and adult), management, and environmental and policyapproaches

The Leading Integrated Chemical Process Design Guide: Now with New Problems, New Projects, and More More than ever, effective design is the focal point of sound chemical engineering. Analysis, Synthesis, and Design of Chemical Processes, Third Edition, presents design as a creative process that integrates both the big picture and the small details—and knows which to stress when, and why. Realistic from start to finish, this book moves readers beyond classroom exercises into open-ended, real-world process problem solving. The authors introduce integrated techniques for every facet of the discipline, from finance to operations, new plant design to existing process optimization. This fully updated Third Edition presents entirely new problems at the end of every chapter. It also adds extensive coverage of batch process design, including realistic examples of equipment sizing for batch sequencing; batch scheduling for multi-product plants; improving production via intermediate storage and parallel equipment; and new optimization techniques specifically for batch processes. Coverage includes Conceptualizing and analyzing chemical processes: flow diagrams, tracing, process conditions, and more Chemical process economics: analyzing capital and manufacturing costs, and predicting or assessing profitability Synthesizing and optimizing chemical processing: experience-based principles, BFD/PFD, simulations, and more Analyzing process performance via I/O models, performance curves, and other tools Process troubleshooting and “debottlenecking” Chemical engineering design and society: ethics, professionalism, health, safety, and new “green engineering” techniques Participating successfully in chemical engineering design teams Analysis, Synthesis, and Design of Chemical Processes, Third Edition, draws on nearly 35 years of innovative chemical engineering instruction at West Virginia University. It includes suggested curricula for both single-semester and year-long design courses; case studies and design projects with practical applications; and appendixes with current equipment cost data and preliminary design information for eleven chemical processes—including seven brand new to this edition.

This book evaluates and discusses the main sustainability challenges encountered in the production of biofuel and bio-products from oil palm biomass. It starts off with the emphasis on oil palm production, oil palm products recovery and oil palm wastes utilization. The simultaneous production of these bio-products for sustainable development is discussed. This is followed by the key factors defining the sustainability of biofuel and bio-product production from oil palm biomass. The environmental issues including ecological, life cycle assessment and environmental impact assessment of oil palm plantation, milling and refining for the production of biofuels and bio-products are presented. Socio-economic and thermodynamic analysis of the production processes are also evaluated using various sustainability assessment tools such as exergy. Lastly, methods of improving biofuel production systems for sustainable development are highlighted.

Strategies for Subseasonal to Seasonal Forecasts

Modeling, Analysis, and Simulation

Management of Spinal Cord Injuries E-Book

The SAGE Encyclopedia of Classroom Management

Chemical Process Design and Integration

A Field Guide to Genetic Programming

The Arts Therapies provides, in one volume, a guide to the different disciplines and their current practice and thinking. It presents: * A clear analysis of the relationship between client, therapist and art form. * An exploration of research, practice and key contributions made to the field by practitioners internationally and within many different contexts. * Discussion of how the arts therapies relate to established health services. The Arts Therapies: A revolution in healthcare is a unique book that provides a thorough and up-to-date overview of the arts therapies. It will prove invaluable to arts therapists, health professionals, and all those who wish to learn more about the field.

Suitable as a text for Chemical Process Dynamics or Introductory Chemical Process Control courses at the junior/senior level. This book aims to provide an introduction to the modeling, analysis, and simulation of the dynamic behavior of chemical processes.

This book provides a comprehensive discussion on urban growth and sprawl, and how they can be analyzed using remote sensing imageries. It compiles views of numerous researchers that help in understanding the urban growth and sprawl; their patterns, process, causes, consequences, and countermeasures; how remote sensing data and geographic information system techniques can be used in mapping, monitoring, measuring, analyzing, and simulating the urban growth and sprawl and what are the merits and demerits of available methods and models. This book will be of value for the scientists and researchers engaged in urban geographic research, especially using remote sensing imageries. This book will serve as a rigours literature review for them. Post graduate students of urban geography or urban/regional planning may refer this book as additional studies. This book may help the academicians for preparing lecture notes and delivering lectures. Industry professionals may also be benefited from the discussed methods and models along with numerous citations.

Who controls how one’s identity is used by others? This legal question, centuries old, demands greater scrutiny in the Internet age. Jennifer Rothman uses the right of publicity—a little-known law, often wielded by celebrities—to answer that question, not just for the famous but for everyone. In challenging the conventional story of the right of publicity’s emergence, development, and justifications, Rothman shows how it transformed people into intellectual property, leading to a bizarre world in which you can lose ownership of your own identity. This shift and the right’s subsequent expansion undermine individual liberty and privacy, restrict free speech, and suppress artistic works. The Right of Publicity traces the right’s origins back to the emergence of the right of privacy in the late 1800s. The central impetus for the adoption of privacy laws was to protect people from “wrongful publicity.” This privacy-based protection was not limited to anonymous private citizens but applied to famous actors, athletes, and politicians. Beginning in the 1950s, the right transformed into a fully transferable intellectual property right, generating a host of legal disputes, from control of dead celebrities like Prince, to the use of student athletes’ images by the NCAA, to lawsuits by users of Facebook and victims of revenge porn. The right of publicity has lost its way. Rothman proposes returning the right to its origins and in the process reclaiming privacy for a public world.

Nature Inc.

Occupational Therapy in Psychiatry and Mental Health

Development and Climate Change

The Arts Therapies

World Development Report 2010

Computer Aided Process and Product Engineering (CAPE)

Written by a highly regarded author with industrial and academic experience, this new edition of an established bestselling book provides practical guidance for students, researchers, and those in chemical engineering. The book includes a new section on sustainable energy, with sections on carbon capture and sequestration, as a result of increasing environmental awareness; and a companion website that includes problems, worked solutions, and Excel spreadsheets to enable students to carry out complex calculations.

As the nation’s economic activities, security concerns, and stewardship of natural resources become increasingly complex and globally interrelated, they become ever more sensitive to adverse impacts from weather, climate, and other natural phenomena. For several decades, forecasts with lead times of a few days for weather and other environmental phenomena have yielded valuable information to improve decision-making across all sectors of society. Developing the capability to forecast environmental conditions and disruptive events several weeks and months in advance could dramatically increase the value and benefit of environmental predictions, saving lives, protecting property, increasing economic vitality, protecting the environment, and informing policy choices. Over the past decade, the ability to forecast weather and climate conditions on subseasonal to seasonal (S2S) timescales, i.e., two to fifty-two weeks in advance, has improved substantially. Although significant progress has been made, much work remains to make S2S predictions skillful enough, as well as optimally tailored and communicated, to enable widespread use. Next Generation Earth System Predictions presents a ten-year U.S. research agenda that increases the nation’s S2S research and modeling capability, advances S2S forecasting, and aids in decision making at medium and extended lead times.

Fluid Bed Technology in Materials Processing comprehensively covers the various aspects of fluidization engineering and presents an elaborate examination of the applications in a multitude of materials processing techniques. This singular resource discusses: All the basic aspects of fluidization essential to understand and learn about various techniques The range of industrial applications Several examples in extraction and process metallurgy Fluidization in nuclear engineering and nuclear fuel cycle with numerous examples Innovative techniques and several advanced concepts of fluidization engineering, including use and applications in materials processing as well as environmental and bio-engineering Pros and cons of various fluidization equipment and specialty of their applications, including several examples Design aspects and modeling Topics related to distributors effects and flow regimes A separate chapter outlines the importance of fluidization engineering in high temperature processing, including an analysis of the fundamental concepts and applications of high temperature fluidized bed furnaces for several advanced materials processing techniques. Presenting information usually not available in a single source, Fluid Bed Technology in Materials Processing serves Fluidization engineers Practicing engineers in process metallurgy, mineral engineering, and chemical metallurgy

Researchers in the field of chemical, metallurgical, nuclear, biological, environmental engineering Energy engineering professionals High temperature scientists and engineers Students and professionals who adopt modeling of fluidization in their venture for design and scale up

Essential for students, science and medical graduates who want to understand the basic science of Positron Emission Tomography (PET), this book describes the physics, chemistry, technology and overview of the clinical uses behind the science of PET and the imaging techniques it uses. In recent years, PET has moved from high-end research imaging tool used by the highly specialized to an essential component of clinical evaluation in the clinic, especially in cancer management. Previously being the realm of scientists, this book explains PET instrumentation, radiochemistry, PET data acquisition and image formation, integration of structural and functional images, radiation dosimetry and protection, and applications in dedicated areas such as drug development, oncology, and gene expression imaging. The technologist, the science, engineering or chemistry graduate seeking further detailed information about PET, or the medical advanced trainee wishing to gain insight into the basic science of PET will find this book invaluable. This book is primarily repackaged content from the Basic Science section of the 'big' Valk book on PET. It contains new, completely revised and unchanged chapters covering the "basic sciences" section of the main book - total 18 chapters: 2 new (chapters 1, 16) 8 completely revised (chapters 4, 5, 8, 13, 14, 15, 17, 18) 3 minor corrections (chapters 2, 6, 11) 5 unchanged (chapters 3, 7, 9, 10, 12)

Neurorehabilitation Technology

Modern Techniques of Spectroscopy

Next Generation Earth System Prediction

A Revolution in Healthcare

Basic Sciences

Catalysis, Green Chemistry and Sustainable Energy

Accompanying CD-ROM contains the newest version of CAPCOST, HENSAD software and an additional appendix presenting preliminary design information for fifteen key chemical processes. The CD also includes six additional projects, plus chapters on outcomes assessment, written and oral communications, and a written report case study.

This book provides a synthesis of research findings, in terms of strategic knowledge outcomes regarding emergence of recent regional climate signals, implications for impacts assessment, and mitigation and adaptation response, relevant in the Indian context. The first part discusses evidence of climate change and its underlying scientific processes across India, chiefly focusing on impacts that are already visible and attributable to anthropogenic activities. The latter part deals with the responses to climate change, highlighting the mitigation and adaptation strategies in various sectors and communities. The book presents a concise interpretation, distilling practical recommendations and policy prescriptions at national and sub-national levels. It serves as a reference point for understanding scientific advances and persisting uncertainty, future vulnerability and response capacity of interlinked human and natural systems, pertaining to India. It is an excellent resource for policy makers and industry watchers in addition to the research fraternity.

This book investigates the role of wealth in achieving sustainable rural economic development. The authors define wealth as all assets net of liabilities that can contribute to well-being, and they provide examples of many forms of capital – physical, financial, human, natural, social, and others. They propose a conceptual framework for rural wealth creation that considers how multiple forms of wealth provide opportunities for rural development, and how development strategies affect the dynamics of wealth. They also provide a new accounting framework for measuring wealth stocks and flows. These conceptual frameworks are employed in case study chapters on measuring rural wealth and on rural wealth creation strategies. Rural Wealth Creation makes numerous contributions to research on sustainable rural development. Important distinctions are drawn to help guide wealth measurement, such as the difference between the wealth located within a region and the wealth owned by residents of a region, and privately owned versus publicly owned wealth. Case study chapters illustrate these distinctions and demonstrate how different forms of wealth can be measured. Several key hypotheses are proposed about the process of rural wealth creation, and these are investigated by case study chapters assessing common rural development strategies, such as promoting rural energy industries and amenity-based development. Based on these case studies, a typology of rural wealth creation strategies is proposed and an approach to mapping the potential of such strategies in different contexts is demonstrated. This book will be relevant to students, researchers, and policy makers looking at rural community development, sustainable economic development, and wealth measurement.

A comprehensive and example oriented text for the study of chemical process design and simulation Chemical Process Design and Simulation is an accessible guide that offers information on the most important principles of chemical engineering design and includes illustrative examples of their application that uses simulation software. A comprehensive and practical resource, the text uses both Aspen Plus and Aspen Hysys simulation software. The author describes the basic methodologies for computer aided design and offers a description of the basic steps of process simulation in Aspen Plus and Aspen Hysys. The text reviews the design and simulation of individual simple unit operations that includes a mathematical model of each unit operation such as reactors, separators, and heat exchangers. The author also explores the design of new plants and simulation of existing plants where conventional chemicals and material mixtures with measurable compositions are used. In addition, to aid in comprehension, solutions to examples of real problems are included. The final section covers plant design and simulation of processes using nonconventional components. This important resource: Includes information on the application of both the Aspen Plus and Aspen Hysys software that enables a comparison of the two software systems Combines the basic theoretical principles of chemical process and design with real-world examples Covers both processes with conventional organic chemicals and processes with more complex materials such as solids, oil blends, polymers and electrolytes Presents examples that are solved using a new version of Aspen software, ASPEN One 9 Written for students and academics in the field of process design, Chemical Process Design and Simulation is a practical and accessible guide to the chemical process design and simulation using proven software.

Climate Change Signals and Response

A Guide for Physiotherapists

Conflict-sensitive Adaptation to Climate Change in Africa

Principles and Case Studies of Simultaneous Design

Integrated Biorefineries

Ammonia Energy Technologies