Chemical Reaction Engineering Solution Fogler 2nd Edition | d4e9aa0aa31a6171c1921c0dd7c876c2

Elements of Chemical Reaction Engineering, eBook [GLOBAL EDITION]Sire Shreves Chemical Process Industries Handbook, 5EChemical and Biochemical Reactors and Process ControlChemical Reaction Engineering and KineticsSolutions Manual for Elements of Chemical Reaction Engineering, 4th EdTransport PhenomenaAnalysis, Synthesis and Design of Chemical Processes18th European Symposium on Computer Aided Process EngineeringChemical Engineering Computation with MATLAB®Chemical Reactor Analysis and DesignChemical Reaction EngineeringSeparation Process EngineeringChemical Reaction EngineeringStrategies for Creative Problem SolvingChemical Reaction EngineeringCHEMICAL REACTION ENGINEERING, 3RD EDFundamentals of Chemical Reaction EngineeringMass-transfer OperationsSeparation Process Principles with Applications Using Process Simulators, 4th EditionChemical Reaction Engineering and Reactor TechnologyCoulson and Richardson's Chemical EngineeringThermodynamics with Chemical Engineering ApplicationsChemical Reaction EngineeringChemical Reactor Omnibook- soft coverOutlines and Highlights for Elementary of Chemical Reaction Engineering by Scott H Fogler, IsbnProblem Solving in Chemical and Biochemical Engineering with POLYMATH, Excel, and MATLABElements of Chemical Reaction EngineeringWax DepositionEssentials of Chemical Reaction Engineering, 2nd EditionEssentials of Chemical Reaction EngineeringElements of Chemical Reaction EngineeringCatalytic ReactorsChemical Engineering KineticsIntroduction to Chemical Engineering Kinetics and Reactor DesignChemical Reaction Engineering and Reactor TechnologyChemical Reactor Analysis and Design FundamentalsAcross America, crime is a consistent public concern. The authors have produced a comprehensive work on major criminological theories, combining classical criminology with new topics, such as Internet crime and terrorism. The text also focuses on how criminology shapes public policy. Today's Definitive, Undergraduate-Level Introduction to Chemical Reaction Engineering Problem-Solving For 30 years, H. Scott Fogler's Elements of Chemical Reaction Engineering has been the #1 selling text for courses in chemical reaction engineering worldwide. Now, in Essentials of Chemical Reaction Engineering, Second Edition, Fogler has distilled this classic into a modern, introductory-level guide specifically for undergraduates. This is the ideal resource for today's students: learners who demand instantaneous access to information and want to enjoy learning as they develop their critical thinking and creative problem-solving skills. Fogler successfully integrates text, visuals, and computer simulations, and links theory to practice through many relevant examples. This updated second edition covers mole balances, conversion and reactor sizing, rate laws and stoichiometry, isothermal reactor design, rate data collection/analysis, multiple reactions, reaction mechanisms, pathways, bioreactions and biocatalysts, catalysis, catalytic reactors, nonisothermal reactor designs, and more. Its multiple improvements include a new discussion of activation energy, molecular simulation, and stochastic modeling, and a significantly revamped chapter on heat effects in chemical reactors. To promote the transfer of key skills to real-life settings, Fogler presents three styles of problems: Straightforward problems that reinforce the principles of chemical reaction engineering Living Example Problems (LEPs) that allow students to rapidly explore the issues and look for optimal solutions Open-ended problems that encourage students to use inquiry-based learning to practice creative problem-solving skills About the Web Site (umich.edu/~elements/5e/index.html) The companion Web site offers extensive enrichment opportunities and additional content, including Complete PowerPoint slides for lecture notes for chemical reaction engineering classes Links to additional software, including PolyMath, MATLAB, Wolfram Mathematica, AspenTech, and COMSOL Multiphysics Interactive learning resources linked to each chapter, including Learning Objectives, Summary Notes, Web Modules, Interactive Computer Games, Computer Simulations and Experiments, Solved Problems, FAQs, and links to LearnChemE Living Example Problems that provide more than 75 interactive simulations, allowing students to explore the examples and ask "what-if " questions Professional Reference Shelf, containing advanced content on reactors, weighted least squares, experimental planning, laboratory reactors, pharmacokinetics, wire gauze reactors, trickle bed reactors, fluidized bed reactors, CVD boat reactors, detailed explanations of key derivations, and more Problem-solving strategies and insights on creative and critical thinking Register your product at informit.com/register for convenient access to downloads, updates, and/or corrections as they become available.Coulson and Richardson's Chemical Engineering: Volume 3A: Chemical and Biochemical Reactors and Reaction Engineering, Fourth Edition, covers reactor design, flow modelling, gas-liquid and gas-solid reactions and reactors. Captures content converted from textbooks into fully revised reference material Includes content ranging from foundational through technical Features emerging applications, numerical methods and computational toolsThe role of the chemical reactor is crucial for the industrial conversion of raw materials into products and numerous factors must be considered when selecting an appropriate and efficient chemical reactor. Chemical Reaction Engineering and Reactor Technology defines the qualitative aspects that affect the selection of an industrial chemical reactor and couples various reactor models to case-specific kinetic expressions for chemical processes. Offering a systematic development of the chemical reaction engineering concept, this volume explores: Essential stoichiometric, kinetic, and thermodynamic terms needed in the analysis of chemical reactors Homogeneous and heterogeneous reactors Residence time distributions and non-ideal flow conditions in industrial reactors Solutions of algebraic and ordinary differential equation systems Gas- and liquid-phase diffusion coefficients and gas-film coefficients Correlations for gas-liquid systems Solubilities of gases in liquids Guidelines for laboratory reactors and the estimation of kinetic parameters The authors pay special attention to the exact formulations and derivations of mass energy balances and their numerical solutions. Richly illustrated and containing exercises and solutions covering a number of processes, from oil refining to the development of specialty and fine chemicals, the text provides a clear understanding of chemical reactor analysis and design. The Definitive Guide to Chemical Reaction Engineering Problem-Solving - With Updated Content and More Active Learning For decades, H. Scott Fogler's Elements of Chemical Reaction Engineering has been the world's dominant chemical reaction engineering text. This SixthEdition and integrated Web site deliver a more compelling active learning experience than ever before. Using sliders and
interactive examples in Wolfram, Python, POLYMATH, and MATLAB, students can explore reactions and reactors by running realistic simulation experiments. Writing for today's students, Fogler provides instant access to information, avoid extraneous details, and presents novel problems linking theory to practice. Faculty can flexibly define their courses, drawing on updated chapters, problems, and extensive Professional Reference Shelf web content at diversleveis of difficulty. 

The book thoroughly prepares undergraduates to apply chemical reaction kinetics and analytics to the design of chemical reactors. And four advanced chapters add graduate-level topics, including effective factors. To support the field's growing emphasis on chemical reactor safety, each chapter now ends with an apractical safety lesson. Updates throughout the book reflect current theory and practice and emphasize safety New discussions of molecular simulations and stochastic modeling Increased emphasis on alternative energy sources such as solar and biofuels Thorough reworking of three chapters on heat effects Full chapters on nonideal reactors, diffusion limitations, and residence time distribution About the Companion Web Site (umich.edu/~elements/6e/index.html) Complete PowerPoint slides for lecture notes for chemical reaction engineering classes Links to additional software, including POLYMATH, MATLAB, Wolfram Mathematica, AspenTech, and COMSOLTM Interactive learning resources linked to each chapter, including Learning Objectives, Summary Notes, Web Modules, Interactive Computer Games, Solved Problems, FAQs, additional homework problems, and links to Learncheme Example Problems - unique to this book - that provide more than 80 interactive simulations, allowing students to explore the examples and ask "what-if" questions Professional Reference Shelf, which includes advanced computation, weighted least squares, experimental planning, wire gauze reactors, and more. 

About the publication of the third edition of "Chemical Engineering Volume" marks the completion of the re-orientation of the basic material contained in the first three volumes of the series. Volume 3 is devoted to reaction engineering (both chemical and biochemical), together with measurement and process control. This text is designed for students, graduate and postgraduate, of chemical engineering. Never HIGHLIGHT a Book Again! Virtually all of the testable terms, concepts, persons, places, and events from the textbook are included. Cram101 Just the FACTS101 studyguides give all of the outlines, highlights, notes, and quizzes for your textbook with optional online comprehensive practice test. Only Cram101 is Textbook Specific. Accompanying: 9780134973943. The Second Edition features new problems that engage readers in contemporary reactor design, Highly praised by instructors, students, and chemical engineers, Introduction to Chemical Engineering Kinetics & Reactor Design has been extensively revised and updated in this Second Edition. The text continues to offer a solid background in chemical reaction kinetics as well as in material and energy balances, preparing readers with the foundation necessary for success in the design of chemical reactors. Moreover, it reflects not only the basic engineering science, but also the mathematical tools used by today's engineers to solve problems associated with the design of chemical reactors. Introduction to Chemical Engineering Kinetics & Reactor Design enables readers to progressively build their knowledge and skills by applying the laws of conservation of mass and energy to increasingly more difficult challenges in reactor design. The first one-third of the text emphasizes general principles of chemical reaction kinetics, setting the stage for the subsequent treatment of reactors intended to carry out homogeneous reactions, heterogeneous catalytic reactions, and biochemical transformations. Topics include: Thermodynamics of chemical reactions Determination of reaction rate expressions Elements of heterogeneous catalysis Basic concepts in reactor design, reactor modeling and simulations, and biochemical reactions Thermoreactor models are discussed in sufficient detail so that about 70% of the problems in this Second Edition are new. These problems, frequently based on articles culled from the research literature, help readers develop a solid understanding of the material. Many of these new problems also offer readers opportunities to use current software applications such as Mathcad and MATLAB®. By enabling readers to progressively build and apply their knowledge, the Second Edition of Introduction to Chemical Engineering Kinetics & Reactor Design remains a premier text for students in chemical engineering and a valuable resource for practicing engineers. Publisher's Note: Products purchased from Third Party sellers are not guaranteed by the publisher for quality, authenticity, or access to any online entitlements included with the product. Chemical reaction engineering is concerned with the exploitation of chemical reactions on a commercial scale. It's goal is the successful design and operation of chemical reactors. This text emphasizes qualitative arguments, simple design methods, graphical procedures, and frequent comparison of capabilities of the major reactor types. Simple ideas are treated first, and are then extended to the more complex. 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 contains numerous worked-out problems and real-world vignettes involving commercial applications, a feature widely praised by reviewers and teachers. 2003 edition. This is the Second Edition of the standard text on chemical reaction engineering, following with basic definitions and fundamental principles and continuing all the way to practical applications, emphasizing real-world aspects of industrial practice. The two main sections cover applied or engineering kinetics, reactor analysis and design. Includes updated coverage of computer modeling methods and many new worked examples. Most of the examples use real kinetic data from processes of industrial importance. The Omnibook aims to present the main ideas of reactor design in a simple and direct way. It includes key formulas, brief explanations, practice exercises, problems from experience and it skims over the field touching on all sorts of reaction systems. Most important of all it tries to show the reader how to approach the problems of reactor design and what questions to ask. In effect it tries to show that a common strategy threads its way through all reactor problems, a strategy which involves three factors: identifying the flow pattern, knowing the kinetics, and developing the proper equipment equation. It is this common strategy which is the heart of Chemical Reaction Engineering and identifies it as a distinct field of study. The Definitive, Fully Updated Guide to Separation Process Engineering-Now with a Thorough Introduction to Mass Transfer Analysis Separation Process Engineering, Third Edition, is the most comprehensive, accessible guide available on modern separation processes and the fundamentals of mass transfer. Phillip C. Wankat teaches each key concept through detailed, realistic examples using real data-including up-to-date simulation practice and new spreadsheet-based exercises. Wankat thoroughly covers each of today's leading approaches, including flash, column, and batch distillation; exact calculations and shortcut methods for multicomponent distillation; staged and packed column design; absorption; stripping; and more. In this edition, he also presents the latest design methods for liquid-liquid extraction.
This edition contains the most detailed coverage available of membrane separations and of sorption separations (adsorption, chromatography, and ion exchange). Updated with new techniques and references throughout, Separation Process Engineering, Third Edition, also contains more than 300 new homework problems, each tested in the author's Purdue University classes. Coverage includes Modular, up-to-date process simulation examples and homework problems, based on Aspen Plus and easily applicable to any simulator. Extensive new coverage of membrane mass transfer and diffusion, including both Fickian and Maxwell-Stefan approaches. Detailed discussions of liquid-liquid extraction including McCabe-Thiele, triangular and computer simulation analyses; mixer-settler design; Karr columns; and related mass transfer analyses. Thorough introductions to adsorption, chromatography, and ion exchange—designed to prepare students for advanced work in these areas. Complete coverage of membrane separations, including gas permeation, reverse osmosis, ultrafiltration, pervaporation, and key applications. A full chapter on economics and energy conservation in distillation. Excel spreadsheets offering additional practice with problems in distillation, diffusion, mass transfer, and membrane separation. The first English edition of this book was published in 2014. This book was originally intended for undergraduate and graduate students and had one major objective: teach the basic concepts of kinetics and reactor design. The main reason behind the book is the fact that students frequently have great difficulty to explain the basic phenomena that occur in practice. Therefore, basic concepts with examples and many exercises are presented in each topic, instead of specific projects of the industry. The main objective was to provoke students to observe the kinetic phenomena and to think about them. Indeed, reactors cannot be designed and operated without a proper understanding of the kinetics of the reacting system. Additionally, the width and depth of the treatment of the topics related to how experimental errors affect kinetic studies are performed and illustrated with actual data. Particularly, analytical and numerical solutions are derived to represent the uncertainties of reactant conversions in distinct scenarios and are used to analyze the quality of the obtained parameter estimates. Consequently, new topics that focus on the development of analytical and numerical procedures for more accurate description of experimental errors in reaction systems and of estimates of kinetic parameters have been included in this version of the book. Finally, kinetics requires knowledge that must be complemented and tested in the laboratory. Therefore, practical examples of reactions performed in bench and semi-pilot scales are discussed in the final chapter. This edition of the book has been organized in two parts. In the first part, a thorough discussion regarding reaction kinetics is presented. In the second part, basic equations are derived and used to represent the performances of batch and continuous ideal reactors, isothermal and non-isothermal reaction systems and homogeneous and heterogeneous reactor vessels, as illustrated with several examples and exercises. This textbook will be of great value to undergraduate and graduate students in chemical engineering as well as to graduate students in and researchers of kinetics and catalysis. The fourth edition of Elements of Chemical Reaction Engineering is a completely revised version of the book. It combines authoritative coverage of the 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. This book provides a framework to hone and polish any person's creative problem-solving skills. Filling a longstanding gap for graduate courses in the field, Chemical Reaction Engineering: Beyond the Fundamentals covers basic concepts as well as complexities of chemical reaction engineering, including novel techniques for process intensification. The book is divided into three parts: Fundamentals Revisited; Part II: Fundamentals; Part III: Beyond the Fundamentals. Part I: Fundamentals presents the features of an undergraduate course, introducing concepts essential to reactor design, such as mixing, unsteady-state operations, multiple steady states, and complex reactions. Part II: Building on Fundamentals is devoted to “skill building,” particularly in the area of catalysis and catalytic reactions. It covers chemical thermodynamics, emphasizing the thermodynamics of adsorption and complex reactions; the fundamentals of chemical kinetics, with special emphasis on microkinetic analysis; and heat and mass transfer effects in catalysis, including transport between phases, transfer across interfaces, and effects of external heat and mass transfer. It also contains a chapter that provides readers with tools for making accurate kinetic measurements and analyzing the data obtained. Part III: Beyond the Fundamentals presents material not commonly covered in textbooks, addressing aspects of reactors involving more than one phase. It discusses solid catalyzed fluid-phase reactions in fixed-bed and fluidized-bed reactors, gas-solid noncatalytic reactions, reactions involving at least one liquid phase (gas-liquid and liquid-liquid), and multiphase reactions. This section also describes membrane-assisted reactor engineering, combo reactors, homogeneous catalysis, and phase-transfer catalysis. The final chapter provides a perspective on future trends in reaction engineering. Separation Process Principles with Applications Using Process Simulator, 4th Edition is the most comprehensive and up-to-date treatment of the major separation operations in the chemical industry. The 4th edition focuses on using process simulators to design separation processes and prepares readers for professional practice. Completely rewritten to enhance clarity, this fourth edition provides engineers with a strong understanding of the field. With the help of an additional co-author, the text presents new information on bioseparations throughout the chapters. A new chapter on mechanical separations covers settling, filtration and centrifugation including mechanical separations in biotechnology and cell lysis. Boxes help highlight fundamental equations. Numerous new examples and exercises are integrated throughout as well. 'Elements of Chemical Reaction Engineering', fourth edition, presents the fundamentals of chemical reaction engineering in a clear and concise manner. Master the principles of thermodynamics with this comprehensive undergraduate textbook, carefully developed to provide students of chemical engineering and chemists with a deep and intuitive understanding of the practical applications of these fundamental ideas and principles. Logical and lucid explanations introduce core thermodynamic concepts in the context of their measurement and experimental origin, giving students a thorough understanding of how theoretical concepts apply to practical situations. A broad range of real-world applications relate key topics to contemporary issues, such as energy efficiency, environmental engineering and climate change, and further reinforce students' understanding of the core material. This is a carefully organized, highly pedagogical treatment, including over 500 open-ended study questions for discussion, over 150 revised homework problems, clear and objective standards for measuring student progress, and a password-protected solution manual for instructors. Solving problems in chemical reaction engineering and kinetics is now easier than ever! As students read through this text, they'll find a comprehensive, introductory treatment of reactors for single-phase and multiphase systems that exposes them to a broad range of reactors and key design features. They'll gain valuable insight.
on reaction kinetics in relation to chemical reactor design. They will also utilize a special software package that helps them quickly solve problems of algebraic and differential equations, and perform parameter estimation, which gives them more time for analysis. Key Features Thorough coverage is provided on the relevant principles of kinetics in order to develop better designs of chemical reactors. E-Z Solve software, on CD-ROM, is included with the text. By utilizing this software, students can have more time to focus on the development of design models and on the interpretation of calculated results. The software also facilitates exploration and development of realistic, industrial design problems. More than 500 worked examples and end-of-chapter problems are included to help students learn how to apply the theory to solve design problems. A web site, www.wiley.com/college/missen, provides additional resources including sample files, demonstrations, and a description of the E-Z Solve software. Chemical Reaction Engineering: Essentials, Exercises and Examples presents the essentials of kinetics, reactor design and chemical reaction engineering for undergraduate students. Concise and didactic in its approach, it features over 70 resolved examples and many exercises. The work is organized in two parts: in the first part kinetics is presented The 18th European Symposium on Computer Aided Process Engineering contains papers presented at the 18th European Symposium of Computer Aided Process Engineering (ESCAPE 18) held in Lyon, France, from 1-4 June 2008. The ESCAPE series brings the latest innovations and achievements by leading professionals from the industrial and academic communities. The series serves as a forum for engineers, scientists, researchers, managers and students from academia and industry to: present new computer aided methods, algorithms, techniques related to process and product engineering, to discuss trans-disciplinary concepts, new enhanced scientific software tools and bridges between fundamental sciences (chemistry, thermodynamics, applied mathematics and computer sciences) with the various aspects of process and product engineering. The special theme for ESCAPE-18 is CAPE for the Users! CAPE systems are to be put in the hands of end users who need functionality and assistance beyond the scientific and technological capacities which are at the core of the systems. The four main topics are: - off-line systems for synthesis and design, - on-line systems for control and operation, - computational and numerical solutions strategies, - integrated and multi-scale modelling and simulation, Two general topics address the impact of CAPE tools and methods on Society and Education. * CD-ROM that accompanies the book contains all research papers and contributions * International in scope with guest speeches and keynote talks from leaders in science and industry * Presents papers covering the latest research, key top areas and developments in Computer Aided Process Engineering Wax Deposition: Experimental Characterizations, Theoretical Modeling, and Field Practices covers the entire spectrum of knowledge on wax deposition. The book delivers a detailed description of the thermodynamic and transport theories for wax deposition modeling as well as a comprehensive review of laboratory testing for the establishment of appropriate field control strategies. Offering valuable insight from academic research and the flow assurance industry, this balanced text: Discusses the background of wax deposition, including the cause of the phenomenon, the magnitude of the problem, and its impact on petroleum production Introduces laboratory techniques and theoretical models to measure and predict key parameters of wax precipitation, such as the wax appearance temperature and the wax precipitation curve Explains how to conduct and interpret laboratory experiments to benchmark different wax deposition models, to better understand wax deposition behaviors, and to predict wax deposit growth for the field Presents various models for wax deposition, analyzing the advantages and disadvantages of each and evaluating the differences between the assumptions used Provides numerous examples of how field management strategies for wax deposition can be established based on laboratory testing, flow assurance, and application of best practices for identifying the severity and controlling the problem of wax deposition. The book also shows students and researchers how fundamental principles of thermodynamics, heat, and mass transfer can be applied to solve a problem common to the petroleum industry. Catalytic Reactors presents several key aspects of reactor design in Chemical and Process Engineering. Starting with the fundamental science across a broad interdisciplinary field, this graduate level textbook offers a concise overview on reactor and process design for students, scientists and practitioners new to the field. This book aims to collate into a comprehensive and well-informed work of leading researchers from North America, western Europe and south-east Asia. The editor and international experts discuss state-of-the-art applications of multifunctional reactors, biocatalytic membrane reactors, micro-flow reactors, industrial catalytic reactors, micro trickle bed reactors and multiphase catalytic reactors. The use of catalytic reactor technology is essential for the economic viability of the chemical manufacturing industry. The importance of Chemical and Process Engineering and the efficient design of reactors are another focus of the book, especially the combination of advantages from both catalysis and chemical reaction technology for optimization and intensification as essential factors in the future development of reactors and processes are discussed. Furthermore, options that can drastically influence reaction processes, e.g. choice of catalysts, alternative reaction pathways, mass and heat transfer effects, flow regimes and inherent design of catalytic reactors are reviewed in detail. Focuses on the state-of-the-art applications of catalytic reactors and optimization in the design and operation of industrial catalytic reactors Insights into transfer of knowledge from laboratory science to industry for students and researchers in Chemical and Mechanical Engineering, Chemistry, Industrial Catalysis and practising EngineersChemical Engineering Computation with MATLAB®, Second Edition continues to present basic to advanced levels of problem-solving techniques using MATLAB as the computation environment. The Second Edition provides even more examples and problems extracted from core chemical engineering subject areas and all code is updated to MATLAB version 2020. It also includes a new chapter on computational intelligence and: Offers exercises and extensive problem-solving instruction and solutions for various problems Features solutions developed using fundamental principles to construct mathematical models and an equation-oriented approach to generate numerical results Delivers a wealth of examples to demonstrate the implementation of various problem-solving approaches and methodologies for problem formulation, problem solving, analysis, and presentation, as well as visualization and documentation of results Includes an appendix offering an introduction to MATLAB for readers unfamiliar with the program, which will allow them to write their own MATLAB programs and follow the examples in the book Provides aid with advanced problems that are often encountered in graduate research and industrial operations, such as nonlinear regression, parameter estimation in differential systems, two-point boundary value problems and partial differential equations and optimization This essential textbook readies engineering students, researchers, and professionals to be proficient in the use of MATLAB to solve sophisticated real-world problems within the interdisciplinary field of chemical engineering. The book features a solutions manual, lecture slides, and MATLAB program files. 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 optimization. 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 undergraduate and graduate students; practical application examples; computer simulations; and current equipment cost data and preliminary design information for eleven chemical processes—including seven brand new to this edition. This book discusses and illustrates practical problem solving in the major areas of chemical and biochemical engineering and related disciplines using the novel software capabilities of POLYMATH, Excel, and MATLAB. Students and engineering/scientific professionals will be able to develop and enhance their abilities to effectively and efficiently solve realistic problems from the simple to the complex. This new edition greatly expands the coverage to include chapters on biochemical engineering, separation processes and process control. Recent advances in the POLYMATH software package and new book chapters on Excel and MATLAB usage allow for exceptional efficiency and flexibility in achieving problem solutions. All of the problems are clearly organized and many complete and partial solutions are provided for all three packages. A special web site provides additional resources for readers and special reduced pricing for the latest educational version of POLYMATH.Market_Desc: · Chemical Engineers in Chemical, Nuclear and Biomedical Industries Special Features: · Emphasis is placed throughout on the development of common design strategy for all systems, homogeneous and heterogeneous-This edition features new topics on biochemical systems, reactors with fluidized solids, gas/liquid reactors, and more on non ideal flow- The book explains why certain assumptions are made, why an alternative approach is not used, and to indicate the limitations of the treatment when applied to real situations About The Book: Chemical reaction engineering is concerned with the exploitation of chemical reactions on a commercial scale. Its goal is the successful design and operation of chemical reactors. This text emphasizes qualitative arguments, simple design methods, graphical procedures, and frequent comparison of capabilities of the major reactor types. Simple ideas are treated first, and are then extended to the more complex.Todays Definitive, Undergraduate-Level Introduction to Chemical Reaction Engineering Problem-Solving For 30 years, H. Scott Fogler's Elements of Chemical Reaction Engineering has been the #1 selling text in chemical reaction engineering. In its latest edition, Fogler explodes this classic into a modern, introductory-level guide specifically for undergraduates. This is the ideal resource for today's students: learners who demand instantaneous access to information and want to enjoy learning as they deepen their critical thinking and creative problem-solving skills. Fogler successfully integrates text, visuals, and computer simulations, and links theory to practice through many relevant examples. 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Starting from the strengths of his classic Elements of Chemical Reaction Engineering Fourth Edition, in this volume H. Scott Fogler added new material and distilled the essentials for undergraduate students. Fogler's unique way of presenting the material helps students gain a deep, intuitive understanding of the field's essentials through reasoning, using a CRE algorithm, not memorization. He especially focuses on important new energy and safety issues, ranging from solar and biomass applications to the avoidance of runaway reactions. Thorou...
with case studies of reactor explosions. About the DVD-ROM The DVD contains six additional, graduate-level chapters covering catalyst decay, external diffusion effects on heterogeneous reactions, diffusion and reaction, distribution of residence times for reactors, models for non-ideal reactors, and radial and axial temperature variations in tubular reactions. Extensive additional DVD resources include Summary notes, Web modules, additional examples, derivations, audio commentary, and self-tests. Interactive computer games that review and apply important chapter concepts Innovative "Living Example Problems" with Polymath code that can be loaded directly from the DVD so students can play with the solution to get an innate feeling of how reactors operate. A 15-day trial of Polymath(tm) is included, along with a link to the Fogler Polymath site. A complete, new AspenTech tutorial, and four complete example problems. Visual Encyclopedia of Equipment, Reactor Lab, and other intuitive tools. More than 500 PowerPoint slides of lecture notes. Additional updates, applications, and information are available at www.umich.edu/~essen and www.essentialsforcpe.com. Copyright code: d4e9aa0aa31a6171c1921c0dd7c876c2