

J M Douglas Conceptual Design Of Chemical Processes Mcgraw Hill

Optimization of Chemical Processes Chemical Process Equipment Integrated Design and Simulation of Chemical Processes Introduction to Chemical Processes: Principles, Analysis, Synthesis Applications in Design and Simulation of Sustainable Chemical Processes Conceptual Design of Chemical Processes Industrial Chemical Process Analysis and Design Process Analysis and Design for Chemical Engineers Chemical Process and Design Handbook Optimization of Chemical Processes Chemical Process Design Shreve's Chemical Process Industries Conceptual Design Chemical Processes Industrial Chemical Process Design, 2nd Edition Chemical Process Industries Industrial Chemical Process Design Modern Chemical Processes Introduction to Chemical Processes Introduction to Chemical Process Fundamentals and Design Introduction to Chemical Process: Fundamentals and Design Thomas F. Edgar James R. Couper Alexandre C. Dimian Regina M. Murphy Alexandre C. Dimian James Merrill Douglas Mariano Martín Martín William Resnick James Speight T. F. Edgar Robin Smith Randolph Norris Shreve James Douglas Douglas Erwin Randolph Norris Shreve Douglas Erwin Industrial and Engineering Chemistry Regina M. Murphy Kenneth A. Solen Kenneth Solen

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*Alexandre C. Dimian Regina M. Murphy Alexandre C. Dimian James Merrill Douglas
Mariano Martín Martín William Resnick James Speight T. F. Edgar Robin Smith
Randolph Norris Shreve James Douglas Douglas Erwin Randolph Norris Shreve
Douglas Erwin Industrial and Engineering Chemistry Regina M. Murphy Kenneth A.
Solen Kenneth Solen*

written by a recognized authority in the area of optimization software this text offers an array of information on the latest advances in optimization techniques explaining both theory and practice specializes in non linear programming mixed integer programming and global optimization ample references explore theoretical concepts in more detail

comprehensive and practical guide to the selection and design of a wide range of chemical process equipment emphasis is placed on real world process design and performance of equipment provides examples of successful applications with numerous drawings graphs and tables to show the functioning and performance of the equipment equipment rating forms and manufacturers questionnaires are collected to illustrate the data essential to process design includes a chapter on equipment cost and addresses economic concerns practical guide to the selection and design of a wide range of chemical process equipment examples of successful real world applications are provided fully revised and updated with valuable shortcut methods rules of thumb and equipment rating forms and manufacturers questionnaires have been collected to demonstrate the design process many line drawings graphs and tables illustrate performance data chapter 19 has been expanded to cover new information on membrane separation approximately 100 worked examples are included end of chapter references also are provided

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

introduction to chemical processes principles analysis synthesis enhances student understanding of the connection between the chemistry and the process users will find strong coverage of chemistry gain a solid understanding of what chemical processes do convert raw materials into useful products using energy and other resources and learn about the ways in which chemical engineers make decisions and balance constraints to come up with new processes and products the author presents material and energy balances as tools to achieve a real goal workable economical and safe chemical processes and products loaded with intriguing pedagogy this text is essential to a students first course in chemical engineering additional resources intended to guide users are also available as package options such as chemskill builder

applications in design and simulation of sustainable chemical processes addresses the challenging applications in designing eco friendly but efficient chemical processes including recent advances in chemistry and catalysis that rely on renewable raw materials grounded in the fundamental knowledge of chemistry thermodynamics chemical reaction engineering and unit operations this book is an indispensable resource for developing and designing innovating chemical processes by employing computer simulations as an efficient conceptual tool targeted to graduate and post graduate students in chemical engineering as well as to professionals the book aims to advance their skills in process innovation and conceptual design the work completes the book integrated design and simulation of chemical processes by elsevier 2014 authored by the same team includes comprehensive case studies of innovative processes based on renewable raw materials outlines process systems engineering approach with emphasis on systematic design methods employs steady state and dynamic process simulation as problem analysis and flowsheet creation tool applies

modern concepts as process integration and intensification for enhancing the sustainability

this text explains the concepts behind process design it uses a case study approach guiding readers through realistic design problems and referring back to these cases at the end of each chapter throughout the author uses shortcut techniques that allow engineers to obtain the whole focus for a design in a very short period generally less than two days

industrial chemical process analysis and design second edition uses chemical engineering principles to explain the transformation of basic raw materials into major chemical products the book discusses traditional processes to create products like nitric acid sulphuric acid ammonia and methanol as well as more novel products like bioethanol and biodiesel in addition to providing full code and datasets for download detailed discussion of advanced in technology this edition also contains three new chapters firstly covering polymers including h and l d pe pmma pc biobased and full analysis of each including full code for modelling across popular software secondly evaluating phosphoric acid production and fertilizers and finally the third new chapter focuses on blast furnaces outlining not only the traditional technologies using c as reducing agent but also analysis of novel technologies using hydrogen this book will be a comprehensive guide to students and academics working with the latest techniques in process optimization at graduate level and above including some upper undergraduate researchers this book will also be very valuable for academics looking to teach or lecture in chemical process engineering this books will also be a very useful resource for anyone within the process industry to introduce the analysis of novel technologies as well as the modelling examples including recent software such as python gproms or even excel or matlab to solve reactor modelling and units operation but also process simulators applied to typical chemical processes integrates principles of chemical engineering unit operations and chemical reactor engineering to understand process synthesis and analysis includes historical perspectives and traces the improving efficiencies of commercially important chemical production processes provides a systematic analysis of the processes building on thermodynamics kinetics mass and energy balances reactor engineering and unit operations details different software packages to solve the examples from general purpose ones such as excel or new ones

like python to specialized ones such as process simulators chemcad or gproms features worked examples and end of chapter problems with solutions to show the application of concepts discussed in the text

control chemical processes to get the results you want invaluable to chemical and environmental engineers as well as process designers chemical process and design handbook shows you how to control chemical processes to yield desired effects efficiently and economically the book examines each of the major chemical processes such as reactions separations mixing heating cooling pressure change and particle size reduction and enlargement in logically arranged alphabetical chapters providing you with an understanding of the essential qualitative analysis of each the handbook from expert james speight emphasizes chemical conversions chemical reactions applied to industrial processing provides easy to understand descriptions to explain reactor type and design describes the latest process developments and possible future improvements or changes

written by a hands on industry consultant and featuring more than 200 illustrations

this book is a true engineer s toolkit providing the solutions to some of the most complex problems in chemical process design sizing equipment estimating cost for modular packages and performing such operations as liquid liquid extraction and gas in liquid separation vessel sizing and rating complex operations and formulas are presented and explained in an easy to understand format industrial chemical process design provides a step by step tutorial for authoring tailor made visual basic programs

introduction to chemical processes principles analysis synthesis is intended for use in an introductory one semester course for students in chemical engineering and related disciplines this title strives to give students a flavor of how chemical processes convert raw materials to useful products and provides students with an appreciation for the ways in which chemical engineers make decisions and balance constraints to come up with new processes and products the new edition of this title is available in connect with smartbook including end of chapter content instructor resources include instructor solutions manual textbook images and sample syllabi

description the goal of this book is to help the student experience chemical engineering to the fullest extent possible within the constraints of limited time and limited student

background in pursuit of that goal it teaches the freshman to solve quantitative problems although at a low level of complexity and within a scope that is narrow and well defined these quantitative topics include material balances reacting and non reacting systems fluid flow including the sizing of pumps mass transfer diffusion and convection chemical reactor design heat transfer including the design of heat exchangers and engineering economics as examples of the limited scope of these topics the treatment of material balances for reacting systems is limited to single process units with one chemical reaction and the treatment of fluid flow applications is restricted to the use of the mechanical energy balance where friction is mentioned but friction factors and methods for determining friction losses are not introduced spreadsheets are also taught and homework problems throughout the book give the students practice with this tool in addition a number of qualitative descriptions are presented in the text including chapters on problem solving engineering teamwork and process control finally the students are given a few writing assignments to illustrate the important role of written communication in engineering

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