

Problem Solving In Chemical Biochemical Engineering

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Buy Problem Solving in Chemical and Biochemical Engineering with POLYMATH, Excel, and MATLAB (2nd Edition) by Cutlip, Michael B., Shacham, Mordechai (2007) Paperback by (ISBN:) from Amazon's Book Store. Everyday low prices and free delivery on eligible orders.

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Problem Solving in Chemical and Biochemical Engineering ...

This book describes succinctly the following classes of problems: (1) fluid properties and other basic calculations such as bubble and dew points, adiabatic flame temperatures, unsteady mixing, and heat exchange in a series of tanks, (2) linear and non-linear regression and correlation of data (a perennial headache), (3) problem solving with Excel and MATLAB, (4) advanced techniques for simultaneous nonlinear algebraic and differential equations (including boundary conditions), and partial ...

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The numerical techniques for problem solving discussed in the book allow students to use widely available mathematical software packages (such as POLYMATH™, Matlab™, Mathematica™, Maple™, MathCAD™) to solve realistic chemical engineering problems much more conveniently, faster, and more accurately than with traditional problem solving techniques.

Cutlip & Shacham, Problem Solving in Chemical Engineering ...

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Biochemical Engineering By Matthias Reuss Horst Chmiel ...

Advice for budding chemical/biochemical engineers: Every person comes with a unique set of skills that can be used effectively to benefit the world and help people live a fruitful life. The world is changing and we need to listen to it and carefully think of strategies in how we can overcome any obstacles.

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.

This greatly expanded and revised second edition includes new chapters on getting started with and using Excel and MATLAB. It also places special emphasis on biochemical engineering with a major chapter on the subject and with the integration of biochemical problems throughout the book. Students and professional engineers will appreciate the ease with which problems can be entered into POLYMATH and then solved independently in all three software packages, while taking full advantage of the unique capabilities within each package. The book includes more than 170 problems requiring numerical solutions.

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"A companion book including interactive software for students and professional engineers who want to utilize problem-solving software to effectively and efficiently obtain solutions to realistic and complex problems. An invaluable reference book that discusses and illustrates practical numerical problem solving in the core subject areas of Chemical Engineering. Problem Solving in Chemical Engineering with Numerical Methods provides an extensive selection of problems that require numerical solutions from throughout the core subject areas of chemical engineering. Many are completely solved or partially solved using POLYMATH as the representative mathematical problem-solving software. Ten representative problems are also solved by Excel, Maple, Mathcad, MATLAB, and Mathematica. All problems are clearly organized and all necessary data are provided. Key equations are presented or derived. Practical aspects of efficient and effective numerical problem solving are emphasized. Many complete solutions are provided within the text and on the CD-ROM for use in problem-solving exercises."-BOOK JACKET.Title Summary field provided by Blackwell North America, Inc. All Rights Reserved

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Enzyme biocatalysis is a fast-growing area in process biotechnology that has expanded from the traditional fields of foods, detergents, and leather applications to more sophisticated uses in the pharmaceutical and fine-chemicals sectors and environmental management. Conventional applications of industrial enzymes are expected to grow, with major opportunities in the detergent and animal feed sectors, and new uses in biotuel production and human and animal therapy. In order to design more efficient enzyme reactors and evaluate performance properly, sound mathematical expressions must be developed which consider enzyme kinetics, material balances, and eventual mass transfer limitations. With a focus on problem solving, each chapter provides abridged coverage of the subject, followed by a number of solved problems illustrating resolution procedures and the main concepts underlying them, plus supplementary questions and answers. Based on more than 50 years of teaching experience, Problem Solving in Enzyme Biocatalysis is a unique reference for students of chemical and biochemical engineering, as well as biochemists and chemists dealing with bioprocesses. Contains: Enzyme properties and applications; enzyme kinetics; enzyme reactor design and operation 146 worked problems and solutions in enzyme biocatalysis.

In this newly revised 5th Edition of Chemical and Engineering Thermodynamics, Sandler presents a modern, applied approach to chemical thermodynamics and provides sufficient detail to develop a solid understanding of the key principles in the field. The text confronts current information on environmental and safety issues and how chemical engineering principles apply in biochemical engineering, bio-technology, polymers, and solid-state-processing. This book is appropriate for the undergraduate and graduate level courses.

CHEMICAL PROCESS ENGINEERING Written by two of the most prolific and respected chemical engineers in the world, this groundbreaking two-volume set is the "new standard" in the industry, offering engineers and students alike the most up-to-date, comprehensive, and state-of-the-art coverage of processes and best practices in the field today. This first new volume in a two-volume set explores and describes integrating new tools for engineering education and practice for better utilization of the existing knowledge on process design. Useful not only for students, professors, scientists and practitioners, especially process, chemical, mechanical and metallurgical engineers, it is also a valuable reference for other engineers, consultants, technicians and scientists concerned about various aspects of industrial design. The text can be considered as a complementary text to process design for senior and graduate students as well as a hands-on reference work or refresher for engineers at entry level. The contents of the book can also be taught in intensive workshops in the oil, gas, petrochemical, biochemical and process industries. The book provides a detailed description and hands-on experience on process design in chemical engineering, and it is an integrated text that focuses on practical design with new tools, such as Excel spreadsheets and UniSim simulation software. Written by two industry and university's most trustworthy and well-known authors, this book is the new standard in chemical, biochemical, pharmaceutical, petrochemical and petroleum refining. Covering design, analysis, simulation, integration, and, perhaps most importantly, the practical application of Microsoft Excel-UniSim software, this is the most comprehensive and up-to-date coverage of all of the latest developments in the industry. It is a must-have for any engineer or student's library.

This long-awaited new edition helps students understand and solve the complex problems that organic chemists regularly face, using a step-by-step method and approachable text. With solved and worked-through problems, the author orients discussion of each through the application of various problem-solving techniques. Teaches organic chemists structured and logical techniques to solve reaction problems and uses a unique, systematic approach. Stresses the logic and strategy of mechanistic problem solving -- a key piece of success for organic chemistry, beyond just specific reactions and facts Has a conversational tone and acts as a readable and approachable workbook allowing reader involvement instead of simply straightforward text Uses 60 solved and worked-through problems and reaction schemes for students to practice with, along with updated organic reactions and illustrated examples Includes website with supplementary material for chapters and problems: <http://tapsoc.yolasite.com>

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