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Energy costs impact the

profitability of virtually all industrial processes. Stressing how plants use power, and how that power is actually generated, this book provides a clear and simple way to understand the energy usage in various processes, as well as methods for optimizing these processes using practical hands-on simulations and a unique approach that details solved problems utilizing actual plant data. Invaluable information offers a complete energy-saving approach essential for both the chemical and mechanical engineering curricula, as well as for practicing engineers. For introductory courses in Engineering and Computing

Based on Excel 2007, *Engineering with Excel, 3e* takes a comprehensive look at using Excel in engineering. This book focuses on applications and is intended to serve as both a textbook and a reference for students. Provides instruction on using Excel including how to build spreadsheets, add and format information, print reports, create charts and graphics, and use basic formulas and functions *Statistics and Probability for Engineering Applications* provides a complete discussion of all the major topics typically covered in a college engineering statistics course. This textbook minimizes the derivations and

mathematical theory, focusing instead on the information and techniques most needed and used in engineering applications. It is filled with practical techniques directly applicable on the job. Written by an experienced industry engineer and statistics professor, this book makes learning statistical methods easier for today's student. This book can be read sequentially like a normal textbook, but it is designed to be used as a handbook, pointing the reader to the topics and sections pertinent to a particular type of statistical problem. Each new concept is clearly and briefly described, whenever possible by relating it to previous topics.

Then the student is given carefully chosen examples to deepen understanding of the basic ideas and how they are applied in engineering. The examples and case studies are taken from real-world engineering problems and use real data. A number of practice problems are provided for each section, with answers in the back for selected problems. This book will appeal to engineers in the entire engineering spectrum (electronics/electrical, mechanical, chemical, and civil engineering); engineering students and students taking computer science/computer engineering graduate courses; scientists needing to use

applied statistical methods; and engineering technicians and technologists. * Filled with practical techniques directly applicable on the job * Contains hundreds of solved problems and case studies, using real data sets * Avoids unnecessary theory It's a Excel basics book that every civil engineer should have read by now. It addresses skills that may not be covered in most Excel for civil engineering texts, such as step by step guides to create an application program and how to convert the steps into VBA code, how to perform matrix operations (multiplication and inversion) using Excel-VBA, macro for creating an engineering chart,

a brief and simple guide to become an instant Excel-VBA programmer, and more... Also to be presented the depiction in AutoCAD program. Yes! AutoCAD is chosen because one of its advantages that relies on high drawing accuracy. You will learn how to create a simple AutoCAD script file using Excel formulas and Excel-VBA. It is expected that you will be able to create simple Cartesian graph in AutoCAD, even you are an AutoCAD first time user! With the ease of working with Excel, coupled with benefit of the given examples in this book, it is expected to increase the interest of the reader to create new original application

programs. Thus, each model or even a specific calculation will be an exciting challenge for a programming job is already enjoyable. Happy Excel programming! Chemical Engineering Design, Second Edition, deals with the application of chemical engineering principles to the design of chemical processes and equipment. Revised throughout, this edition has been specifically developed for the U.S. market. It provides the latest US codes and standards, including API, ASME and ISA design codes and ANSI standards. It contains new discussions of conceptual plant design, flowsheet development, and revamp design; extended

coverage of capital cost estimation, process costing, and economics; and new chapters on equipment selection, reactor design, and solids handling processes. A rigorous pedagogy assists learning, with detailed worked examples, end of chapter exercises, plus supporting data, and Excel spreadsheet calculations, plus over 150 Patent References for downloading from the companion website. Extensive instructor resources, including 1170 lecture slides and a fully worked solutions manual are available to adopting instructors. This text is designed for chemical and biochemical engineering

students (senior undergraduate year, plus appropriate for capstone design courses where taken, plus graduates) and lecturers/tutors, and professionals in industry (chemical process, biochemical, pharmaceutical, petrochemical sectors). New to this edition: Revised organization into Part I: Process Design, and Part II: Plant Design. The broad themes of Part I are flowsheet development, economic analysis, safety and environmental impact and optimization. Part II contains chapters on equipment design and selection that can be used as supplements to a lecture course or as essential references for students or

practicing engineers working on design projects. New discussion of conceptual plant design, flowsheet development and revamp design Significantly increased coverage of capital cost estimation, process costing and economics New chapters on equipment selection, reactor design and solids handling processes New sections on fermentation, adsorption, membrane separations, ion exchange and chromatography Increased coverage of batch processing, food, pharmaceutical and biological processes All equipment chapters in Part II revised and updated with current information Updated

throughout for latest US codes and standards, including API, ASME and ISA design codes and ANSI standards Additional worked examples and homework problems The most complete and up to date coverage of equipment selection 108 realistic commercial design projects from diverse industries A rigorous pedagogy assists learning, with detailed worked examples, end of chapter exercises, plus supporting data and Excel spreadsheet calculations plus over 150 Patent References, for downloading from the companion website Extensive instructor resources: 1170 lecture slides plus fully worked

solutions manual available to adopting instructors This book provides the fundamentals of the application of mathematical methods, modern computational tools (Excel, Mathcad, SMath, etc.), and the Internet to solve the typical problems of heat and mass transfer, thermodynamics, fluid dynamics, energy conservation and energy efficiency. Chapters cover the technology for creating and using databases on various properties of working fluids, coolants and thermal materials. All calculation methods are provided with links to online computational pages where data can be inserted and recalculated. It discusses tasks

involving the generation of electricity at thermal, nuclear, gas turbine and combined-cycle power plants, as well as processes of co- and trigeneration, conditioning facilities and heat pumps. This text engages students and researchers by using modern calculation tools and the Internet for thermal engineering applications. This book treats modeling and simulation in a simple way, that builds on the existing knowledge and intuition of students. They will learn how to build a model and solve it using Excel. Most chemical engineering students feel a shiver down the spine when they see a set of complex

mathematical equations generated from the modeling of a chemical engineering system. This is because they usually do not understand how to achieve this mathematical model, or they do not know how to solve the equations system without spending a lot of time and effort. Trying to understand how to generate a set of mathematical equations to represent a physical system (to model) and solve these equations (to simulate) is not a simple task. A model, most of the time, takes into account all phenomena studied during a Chemical Engineering course. In the same way, there is a multitude of numerical methods that can be used to

solve the same set of equations generated from the modeling, and many different computational languages can be adopted to implement the numerical methods. As a consequence of this comprehensiveness and combinatorial explosion of possibilities, most books that deal with this subject are very extensive and embracing, making need for a lot of time and effort to go through this subject. It is expected that with this book the chemical engineering student and the future chemical engineer feel motivated to solve different practical problems involving chemical processes, knowing they can do that in an easy and

fast way, with no need of expensive software. 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 latest edition expands Practical Numerical Methods (PNM) with more VBA to boost Excel's power for modeling and analysis using the same numerical techniques found in specialized math software. Visit the companion web site for more details and additional content: www.d.umn.edu/rdavis/PNM Download the book's Excel and VBA files and learn how to customize your own Excel workbooks: Get the PNMSuite A refined macro-enabled Excel workbook with a suite of over 200 VBA user-defined functions, macros, and user-forms for learning VBA and implementing advanced numerical methods in Excel.

Work through the hundreds of examples, illustrations, and animations from the book available in downloadable Excel files that demonstrate applied numerical methods in Excel. Customize the example Excel worksheets and VBA code to tackle your own problems. Try the practice problems for a self-guided study to sharpen your Excel and VBA skills. The first chapter sets up the background for practical problem solving using numerical methods. The next two chapters cover frequently overlooked features of Excel and VBA for implementing numerical methods in Excel and documenting results. The

remaining chapters present powerful numerical techniques using Excel and VBA to find roots to individual and systems of linear and nonlinear equations, evaluate derivatives, perform optimization, model data by regression and interpolation, assess model fidelity, analyze risk and uncertainty, perform integration, and solve ordinary and partial differential equations. This new edition builds on the success of previous editions with 20% new content and updated features in the latest editions of Excel! The field of Chemical Engineering and its link to computer science is in constant evolution and new engineers

have a variety of tools at their disposal to tackle their everyday problems. Introduction to Software for Chemical Engineers, Second Edition provides a quick guide to the use of various computer packages for chemical engineering applications. It covers a range of software applications from Excel and general mathematical packages such as MATLAB and MathCAD to process simulators, CHEMCAD and ASPEN, equation-based modeling languages, gProms, optimization software such as GAMS and AIMS, and specialized software like CFD or DEM codes. The different packages are introduced and

applied to solve typical problems in fluid mechanics, heat and mass transfer, mass and energy balances, unit operations, reactor engineering, process and equipment design and control. This new edition offers a wider view of packages including open source software such as R, Python and Julia. It also includes complete examples in ASPEN Plus, adds ANSYS Fluent to CFD codes, Lingo to the optimization packages, and discusses Engineering Equation Solver. It offers a global idea of the capabilities of the software used in the chemical engineering field and provides examples for solving real-world problems. Written

by leading experts, this book is a must-have reference for chemical engineers looking to grow in their careers through the use of new and improving computer software. Its user-friendly approach to simulation and optimization as well as its example-based presentation of the software, makes it a perfect teaching tool for both undergraduate and master levels. As every Engineer needs to do many daily calculations especially using modern standards like EUROCODES, the need to write custom software solutions is more and more real. Especially if standards include many complex formulas which are hardly calculated using pocket

computers as it was 30 years ago. Then it came programmable pocket computers, I clearly remember as I had SHARP programmable computer, where it was possible to write a complex software, but you couldn't print the results as it is possible now. So today it is possible just by using Microsoft Excel and its programming abilities to write real software which can solve all daily engineering calculations with ease. What does an engineer need? So what does an engineer need when creating calculations? First there are input parameters, which should be entered on a very simple and a quick way, then a simple sketch

as a graphical representation of the basis of calculation with annotations of input parameters. After that engineer needs to define the mathematical procedure which could be very simple, but it should also enable him, to write also more complex formulas or iterations. This is very easy to do with Excel. In this book I will show you that you do not need to be a software developer to create your own customized engineering calculations in minutes. What is maybe the most important, you can update formulas in your calculation any time you want. This is the solution that every engineer needs, because it offers open-

source solution with powerful programmable tools, but on the other side simple enough to be done instantly. We will learn the following topics: - How to create cells where input parameters should be entered - How to create a sketch with annotations of input parameters - How to prepare cells where results of calculation will be written - How to create a push button, where you will trigger start of the calculation - How to write code to perform calculation - How to write code to display the results of calculation - How to perform calculation This book will also show you how to write the software for practical engineering calculation for

structural analysis. I will show you in detail, how to enter data, define formulas and actually perform calculation, including how to display results and format cells for results of calculation. I will provide you with an easy-to-follow material explanation, all steps including source code will be explained in detail. This book sets out the principles of engineering practice, knowledge that has come to light through more than a decade of research by the author and his students studying engineers at work. Until now, this knowledge has been almost entirely unwritten, passed on invisibly from one generation of engineers to the next, what engineers refer to

as “experience”. This is a book for all engineers. It distils the knowledge of many experts in one volume. The book will help engineers enjoy a more satisfying and rewarding career and provide more valuable results for their employers and clients. The book focuses on issues often seen as “non-technical” in the world of engineering, yet it shows how these issues are thoroughly technical. Engineering firms traditionally have sought expert advice on these aspects from management schools, often regarding these aspects of engineering practice as something to do with psychology or organisational

behaviour. The results are normally disappointing because management schools and psychologists have limited insight and understanding of the technical dimensions in engineering work. Little if any of the material in this book can be obtained from management texts or courses. Management schools have avoided the technical dimension of workplace practices and that is precisely what characterises engineering practice. The technical dimension infuses almost every aspect of an engineer's working day and cannot be avoided. That's why this book is so necessary: there has not yet been any authoritative source or

guidance to bridge the gap between inanimate technical issues and organisational behaviour. This book fills this gap in our knowledge, is based on rigorous research, and yet is written in a style which is accessible for a wide audience. "This textbook presents fundamental concepts that engineering students need to master in one semester. The author applies an incremental learning method, starting with resolving personal financial matters and gradually progressing to the complexities of engineering economic calculations. Practical examples and exercises with answers at the end of each chapter teach students to solve

problems using Microsoft Excel without the need for calculus. Future engineers also will gain valuable skills such as the ability to effectively communicate the results of their analyses to financial professionals"-- A unique and interdisciplinary field, food processing must meet basic process engineering considerations such as material and energy balances, as well as the more specialized requirements of food acceptance, human nutrition, and food safety. Food engineering, therefore, is a field of major concern to university departments of food science, and chemical and biological engineering as well

as engineers and scientists working in various food processing industries. Part of the notable CRC Press Contemporary Food Engineering series, Food Process Engineering Operations focuses on the application of chemical engineering unit operations to the handling, processing, packaging, and distribution of food products. Chapters 1 through 5 open the text with a review of the fundamentals of process engineering and food processing technology, with typical examples of food process applications. The body of the book then covers food process engineering operations in detail, including theory,

process equipment, engineering operations, and application examples and problems. Based on the authors' long teaching and research experience both in the US and Greece, this highly accessible textbook employs simple diagrams to illustrate the mechanism of each operation and the main components of the process equipment. It uses simplified calculations requiring only elementary calculus and offers realistic values of food engineering properties taken from the published literature and the authors' experience. The appendix contains useful engineering data for process calculations, such as steam

tables, engineering properties, engineering diagrams, and suppliers of process equipment. Designed as a one or two semester textbook for food science students, Food Process Engineering Operations examines the applications of process engineering fundamentals to food processing technology making it an important reference for students of chemical and biological engineering interested in food engineering, and for scientists, engineers, and technologists working in food processing industries. Quickly and efficiently learn the latest version of Office Are you a visual learner who wants to spend more time working in

Microsoft Office than trying to figure out how the programs actually work? Teach Yourself Visually Office offers you a straightforward, visual approach to making your work life more efficient and productive using the latest version of the Microsoft Office suite. Featuring visually rich tutorials and step-by-step instructions that will help you make the most of this power-packed suite of office productivity tools, it covers everything you need to compute, document, graph, chart, present, and organize your way to success in the workplace—from the most basic to the most advanced. The Microsoft Office suite can

be intimidating to the uninitiated, but it doesn't have to be. Through a series of easy-to-follow, full-color two-page tutorials, you'll quickly get up and running on working in Word, excelling at Excel, powering through PowerPoint, keeping in touch on Outlook, managing data in Access, and propelling your way through Publisher like a pro! Highly visual tutorials and step-by-step screenshots make lessons easy to follow and understand. Helps you grasp the basic functions of Microsoft Office—and beyond. Walks you through Microsoft Office's new features. Demonstrates how to use the Microsoft Office suite to make your work life more

streamlined and effective. Whether you're looking to discover what's new in the latest release of Microsoft Office or don't know Access from Word, this visual guide makes learning easy! Reviews from the First Edition: "Excel® for Chemists should be part of any academic library offering courses and programs in chemistry. There is no other book on the market that deals so thoroughly with the application of Excel for analyzing chemical data. Highly recommended, for upper-division undergraduates through professionals." -Choice "I highly recommend this book; treat yourself to it; assign it to a class; give it as a gift." -The

Nucleus Chemists across all subdisciplines use Excel to record data in tabular form, but few have learned to take full advantage of the scientific calculating power within this program. Excel is capable of helping chemists process, analyze, and present scientific data, from the relatively simple to the highly complex. Excel® for Chemists, Second Edition has been revised and updated, not only to take into account the changes that were made in Excel, but also to incorporate an abundance of new examples. Arranged in a user-friendly format, this book contains illustrations and examples of chemical applications, useful "Howto"

boxes outlining how to accomplish complex tasks in Excel, and step-by-step instructions for programming Excel to automate repetitive data-processing tasks. In addition, tips are provided to speed, simplify, and improve your use of Excel. Included is a CD-ROM, usable in either Macintosh or IBM/Windows environments with many helpful spreadsheet templates, macros, and other tools. Entirely new chapters contained in this Second Edition feature: Array formulas covered in depth in a separate chapter, along with a comprehensive review of using arrays in VBA. How to create a worksheet with controls, such as option buttons, check boxes,

or a list box. An extensive list of shortcut keys—over 250 for Macintosh or PC—is provided in the appendix. Whether as a text for students or as a reference for chemical professionals in industry, academia, or government, Excel® for Chemists, Second Edition provides a valuable resource for using Excel to manage various chemical calculations. With the many software packages available today, it's easy to overlook the computational and graphics capabilities offered by Microsoft® Excel™. The software is nearly ubiquitous and understanding its capabilities is an enormous benefit to engineers in almost any field and at all levels of

experience. What Every Engineer Should Know About Excel offers in nine self-contained chapters a practical guide to the features and functions that can be used, for example, to solve equations and systems of equations, build charts and graphs, create line drawings, and perform optimizations. The author uses examples and screenshots to walk you through the steps and build a strong understanding of the material. With this book, you will learn how to... Set up the keyboard for direct entry of most math and Greek symbols Build a default scatter graph that is applicable to most simple presentations with little cosmetic modification Apply

many types of formats to adjust the cosmetics of graphs Use 3D surface and area charts for data and functional representations, with associated cosmetic adjustments Correlate data with various types of functional relations Use line drawing tools to construct simple schematics or other diagrams Solve linear and nonlinear sets of equations using multiple methods Curve student grades using Excel probability functions Model device performance using different types of regression analysis involving multiple variables Manipulate Excel financial functions Calculate retirement accumulation with variable contribution rate and

retirement payouts to match increases in inflation Apply Excel methods for optimization problems with both linear and nonlinear relations Use pivot tables to manipulate both experimental data and analytical relationships Calculate experimental uncertainties using Excel And much more! For introductory courses in Engineering and Computing Based on Excel 2007, Engineering with Excel, 3e takes a comprehensive look at using Excel in engineering. This book focuses on applications and is intended to serve as both a textbook and a reference for students. Using the author's considerable experience of applying

Mathcad to engineering problems, Engineering with Mathcad identifies the most powerful functions and features of the software and teaches how to apply these to create comprehensive engineering calculations. Many examples from a variety of engineering fields demonstrate the power and utility of Mathcad's tools, while also demonstrating how other software, such as Microsoft Excel spreadsheets, can be incorporated effectively. This simple, step-by-step approach makes this book an ideal Mathcad text for professional engineers as well as engineering and science students. A CD-ROM packaged with the book contains all the

examples in the text and an evaluation version of the Mathcad software, enabling the reader to learn by doing and experiment by changing parameters. * Identifies the key Mathcad functions for creating comprehensive engineering calculations * A step-by-step approach enables easy learning for professional engineers and students alike * Includes a CD-ROM containing all the examples in the text and an evaluation version of the Mathcad software Presents standard numerical approaches for solving common mathematical problems in engineering using Python. Covers the most common numerical calculations used by

engineering students Covers Numerical Differentiation and Integration, Initial Value Problems, Boundary Value Problems, and Partial Differential Equations Focuses on open ended, real world problems that require students to write a short report/memo as part of the solution process Includes an electronic download of the Python codes presented in the book More than ever, American industry especially the semiconductor industry is using statistical methods to improve its competitive edge in the world market. It is becoming more imperative that graduate engineers have solid statistical know-how, yet engineers in

industry typically are not well-prepared to use statistics and they are fuzzy about how to apply statistical tools and techniques. This valuable reference makes statistical methods easier and more accessible to engineers. Although the book can be read sequentially, like a normal textbook, it is designed to be used as a handbook, pointing the reader to the topics and sections pertinent to a particular type of statistical problem. It contains the following features: * Covers all major topics treated in a standard college engineering statistics course, but minimizes the mathematical derivations and focuses on practical

applications * Uses real data sets/case studies taken from electronics, electrical engineering, and other engineering fields, such as mechanical and chemical engineering * Contains numerous software examples using the powerful statistical functions of Excel In addition, the book provides an "engineering problem solver" section that directs the reader to the relevant section of the book for the problem they are trying to solve. The accompanying CD-ROM contains the Excel data sets for the examples and case studies given in the book, along with other statistical tools and software. * Filled with practical

techniques directly applicable on the job * Contains hundreds of solved problems and case studies, using real data sets * Avoids unnecessary theory A practical introductory guide to optical design covering geometrical optics, simple wave-optics and diffraction, using Excel software • explains practical calculation methods for designing optical systems with fully worked-out examples and avoiding complex mathematical methods • includes practical calculations for ray tracing, laser beam (Gaussian beam) focusing, and diffraction calculations; the ray tracing and the diffraction calculations are done by using the VBA program which Excel

provides as a supporting tool • describes basic optical theory and application methods, and provides readers with calculation methods for designing laser optical systems with numerous practical calculation examples. After finishing the book, even inexperienced readers should have the ability to design laser optical systems • covers large areas of geometrical optics and diffraction theory, providing a good overview and reference for beginners or non-specialist engineers • accompanied by a website including password protected electronic files This book demonstrates some of the ways in which Microsoft Excel® may be used to solve

numerical problems in the field of physics. But why use Excel in the first place? Certainly, Excel is never going to out-perform the wonderful symbolic algebra tools that The Engineer's Tables refreshes the principles of the traditional calculations and show how to align MS Excel to produce engineering quality spreadsheets for excellent calculations. Are you a visual learner? Do you prefer instructions that show you how to do something - and skip the long-winded explanations? If so, then this book is for you. Open it up and you'll find clear, step-by-step screen shots that show you how to tackle more than 150 Excel 2007 tasks.

Each task-based spread includes easy, visual directions for performing necessary operations, including: * Using the Ribbon and galleries * Entering data and resizing columns * Applying formulas and functions * Formatting worksheets * Adding clip art and 3D effects * Interpreting data with charts * Helpful sidebars offer practical tips and tricks * Succinct explanations walk you through step by step * Full-color screen shots demonstrate each task * Two-page lessons break big topics into bite-sized modules Fundamentals of Engineering Economic Analysis offers a powerful, visually-rich approach to the

subject—delivering streamlined yet rigorous coverage of the use of economic analysis techniques in engineering design. This award-winning textbook provides an impressive array of pedagogical tools to maximize student engagement and comprehension, including learning objectives, key term definitions, comprehensive case studies, classroom discussion questions, and challenging practice problems. Clear, topically—organized chapters guide students from fundamental concepts of borrowing, lending, investing, and time value of money, to more complex topics such as capitalized and future worth,

external rate of return, depreciation, and after-tax economic analysis. This fully-updated second edition features substantial new and revised content that has been thoroughly re-designed to support different learning and teaching styles. Numerous real-world vignettes demonstrate how students will use economics as practicing engineers, while plentiful illustrations, such as cash flow diagrams, reinforce student understanding of underlying concepts. Extensive digital resources now provide an immersive interactive learning environment, enabling students to use integrated tools such as Excel. The addition of the

WileyPLUS platform provides tutorials, videos, animations, a complete library of Excel video lessons, and much more. A Practical Approach to Chemical Engineering for Non-Chemical Engineers is aimed at people who are dealing with chemical engineers or those who are involved in chemical processing plants. The book demystifies complicated chemical engineering concepts through daily life examples and analogies. It contains many illustrations and tables that facilitate quick and in-depth understanding of the concepts handled in the book. By studying this book, practicing engineers (non-chemical), professionals, technicians and

other skilled workers will gain a deeper understanding of what chemical engineers say and ask for. The book is also useful for engineering students who plan to get into chemical engineering and want to know more on the topic and any related jargon. Provides numerous graphs, images, sketches, tables, help better understanding of concepts in a visual way Describes complicated chemical engineering concepts by daily life examples and analogies, rather than by formula Includes a virtual tour of an imaginary process plant Explains the majority of units in chemical engineering Learn to fully harness the power of Microsoft

Excel(r) to perform scientific and engineering calculations With this text as your guide, you can significantly enhance Microsoft Excel's(r) capabilities to execute the calculations needed to solve a variety of chemical, biochemical, physical, engineering, biological, and medicinal problems. The text begins with two chapters that introduce you to Excel's Visual Basic for Applications (VBA) programming language, which allows you to expand Excel's(r) capabilities, although you can still use the text without learning VBA. Following the author's step-by-step instructions, here are just a few of the calculations you learn to

perform: * Use worksheet functions to work with matrices * Find roots of equations and solve systems of simultaneous equations * Solve ordinary differential equations and partial differential equations * Perform linear and non-linear regression * Use random numbers and the Monte Carlo method This text is loaded with examples ranging from very basic to highly sophisticated solutions. More than 100 end-of-chapter problems help you test and put your knowledge to practice solving real-world problems. Answers and explanatory notes for most of the problems are provided in an appendix. The CD-ROM that accompanies this text provides

several useful features: * All the spreadsheets, charts, and VBA code needed to perform the examples from the text * Solutions to most of the end-of-chapter problems * An add-in workbook with more than twenty custom functions This text does not require any background in programming, so it is suitable for both undergraduate and graduate courses. Moreover, practitioners in science and engineering will find that this guide saves hours of time by enabling them to perform most of their calculations with one familiar spreadsheet package. Covers engineering tables, data plotting, macros, curve fitting, summing series, differentiation

and integration, nonlinear equations, and differential equations Given the improved analytical capabilities of Excel, scientists and engineers everywhere are using it--instead of FORTRAN--to solve problems. And why not? Excel is installed on millions of computers, features a rich set of built-in analyses tools, and includes an integrated Visual Basic for Applications (VBA) programming language. No wonder it's today's computing tool of choice. Chances are you already use Excel to perform some fairly routine calculations. Now the Excel Scientific and Engineering Cookbook shows you how to leverage Excel to perform more

complex calculations, too, calculations that once fell in the domain of specialized tools. It does so by putting a smorgasbord of data analysis techniques right at your fingertips. The book shows how to perform these useful tasks and others: Use Excel and VBA in general Import data from a variety of sources Analyze data Perform calculations Visualize the results for interpretation and presentation Use Excel to solve specific science and engineering problems Wherever possible, the Excel Scientific and Engineering Cookbook draws on real-world examples from a range of scientific disciplines such as biology, chemistry, and

physics. This way, you'll be better prepared to solve the problems you face in your everyday scientific or engineering tasks. High on practicality and low on theory, this quick, look-up reference provides instant solutions, or "recipes," to problems both basic and advanced. And like other books in O'Reilly's popular Cookbook format, each recipe also includes a discussion on how and why it works. As a result, you can take comfort in knowing that complete, practical answers are a mere page-flip away. A complete tutorial on how to use all version of the excel spreadsheets including 3.0 for specific engineering and

scientific functions. CHEMICAL PROCESS ENGINEERING Written by one of the most prolific and respected chemical engineers in the world and his co-author, also a well-known and respected engineer, this two-volume set is the "new standard" in the industry, offering engineers and students alike the most up-do-date, comprehensive, and state-of-the-art coverage of processes and best practices in the field today. This new 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, university

professors, 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 complementary 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 Microsoft Excel spreadsheets and UniSim simulation software. Written by two of the industry'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. Did you know that using Excel properly could cut your work time in half? Would you like to learn how to use it well but think it is difficult and takes too much time? One of the most common and frustrating problems in offices and for those managing household finances is having to repeat the same operations over and over again, making work increasingly stressful and less productive over time. To date, employers are looking for people who know how to use Excel correctly to speed up calculation processes, but still, few have this skill, making it increasingly sought after and

paid. If you wish to turn your job around, this book will be all you need! Discover the most comprehensive step-by-step guide suitable for anyone thanks to simple, straightforward explanations accompanied by many pictures that will make learning even faster. With this manual, you will become the expert everyone needs for their business! Here is what you will be able to do with this guide: • Increase your efficiency at work to stand out from others and get noticed by the boss, • Decrease the time spent doing tedious manual tasks at the PC by being able to automate most processes while saving time and energy, • Apply knowledge

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