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J. Richard Elliott is Professor of Chemical Engineering at the University of Akron in Ohio. He has taught courses ranging from freshman tools to senior process design as well as thermodynamics at every level.

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Introductory Chemical Engineering Thermodynamics Elliot J. Richard Elliott is Professor of Chemical Engineering at the University of Akron in Ohio. He has taught courses ranging from freshman tools to senior process design as well as thermodynamics at every level. He has worked with the NIST lab in Boulder and ChemStations in Houston. He holds a Ph.D. from

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In this book, two leading experts and long-time instructors thoroughly explain therodynamics, taking the molecular perspective that working engineers require (and competitive books often avoid). This new Second Edition contains extensive new coverage of today's fast-growing biochemical engineering applications, notably biomass conversion to fuels and chemicals. It also presents many new MATLAB examples and tools to complement its previous usage of Excel and other software.

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Step-by-step instructions enable chemical engineers to masterkey software programs and solve complex problems Today, both students and professionals in chemical engineeringmust solve increasingly complex problems dealing with refineries,fuel cells, microreactors, and pharmaceutical plants, to name afew. With this book as their guide, readers learn to solve theseproblems using their computers and Excel, MATLAB, Aspen Plus, andCOMSOL Multiphysics. Moreover, they learn how to check theirsolutions and validate their results to make sure they have solvedthe problems correctly. Now in its Second Edition, Introduction to ChemicalEngineering Computing is based on the author's firsthandteaching experience. As a result, the emphasis is on problemsolving. Simple introductions help readers become conversant witheach program and then tackle a broad range of problems in chemicalengineering, including: Equations of state Chemical reaction equilibria Mass balances with recycle streams Thermodynamics and simulation of mass transfer equipment Process simulation Fluid flow in two and three dimensions All the chapters contain clear instructions, figures, andexamples to guide readers through all the programs and types ofchemical engineering problems. Problems at the end of each chapter,ranging from simple to difficult, allow readers to gradually buildtheir skills, whether they solve the problems themselves or inteams. In addition, the book's accompanying website lists thecore principles learned from each problem, both from a chemicalengineering and a computational perspective. Covering a broad range of disciplines and problems withinchemical engineering, Introduction to Chemical EngineeringComputing is recommended for both undergraduate and graduatestudents as well as practicing engineers who want to know how tochoose the right computer software program and tackle almost anychemical engineering problem.

Suitable for undergraduates, postgraduates and professionals, this is a comprehensive text on physical and chemical equilibrium. De Nevers is also the author of Fluid Mechanics for Chemical Engineers.

The Clear, Well-Organized Introduction to Thermodynamics Theory and Calculations for All Chemical Engineering Undergraduate Students This text is designed to make thermodynamics far easier for undergraduate chemical engineering students to learn, and to help them perform thermodynamic calculations with confidence. Drawing on his award-winning courses at Penn State, Dr. Themis Matsoukas focuses on "why" as well as "how." He offers extensive imagery to help students conceptualize the equations, illuminating thermodynamics with more than 100 figures, as well as 190 examples from within and beyond chemical engineering. Part I clearly introduces the laws of thermodynamics with applications to pure fluids. Part II extends thermodynamics to mixtures, emphasizing phase and chemical equilibrium. Throughout, Matsoukas focuses on topics that link tightly to other key areas of undergraduate chemical engineering, including separations, reactions, and capstone design. More than 300 end-of-chapter problems range from basic calculations to realistic environmental applications; these can be solved with any leading mathematical software. Coverage includes • Pure fluids, PVT behavior, and basic calculations of enthalpy and entropy • Fundamental relationships and the calculation of properties from equations of state • Thermodynamic analysis of chemical processes • Phase diagrams of binary and simple ternary systems • Thermodynamics of mixtures using equations of state • Ideal and nonideal solutions • Partial miscibility, solubility of gases and solids, osmotic processes • Reaction equilibrium with applications to single and multiphase reactions