

Che 332 Chemical Engineering Thermodynamics Ii University

Announcements for the following year included in some vols.

A facility is only as efficient and profitable as the equipment that is in it: this highly influential book is a powerful resource for chemical, process, or plant engineers who need to select, design or configures plant sucessfully and profitably. It includes updated information on design methods for all standard equipment, with an emphasis on real-world process design and performance. The comprehensive and influential guide to the selection and design of a wide range of chemical process equipment, used by engineers globally • Copious examples of successful applications, with supporting schematics and data to illustrate the functioning and performance of equipment Revised edition, new material includes updated equipment cost data, liquid-solid and solid systems, and the latest information on membrane separation technology Provides equipment rating forms and manufacturers' data, worked examples, valuable shortcut methods, rules of thumb, and equipment rating forms to demonstrate and support the design process Heavily illustrated with many line drawings and schematics to aid understanding, graphs and tables to illustrate performance data

Building up gradually from first principles, this unique introduction to modern thermodynamics integrates classical, statistical and molecular approaches and is especially designed to support students studying chemical and biochemical engineering. In addition to covering traditional problems in engineering thermodynamics in the context of biology and materials chemistry,

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students are also introduced to the thermodynamics of DNA, proteins, polymers and surfaces. It includes over 80 detailed worked examples, covering a broad range of scenarios such as fuel cell efficiency, DNA/protein binding, semiconductor manufacturing and polymer foaming, emphasizing the practical real-world applications of thermodynamic principles; more than 300 carefully tailored homework problems, designed to stretch and extend students' understanding of key topics, accompanied by an online solution manual for instructors; and all the necessary mathematical background, plus resources summarizing commonly used symbols, useful equations of state, microscopic balances for open systems, and links to useful online tools and datasets.

List of Examples; Rules of Thumb; Introduction; Flowsheets; Process Control; Drivers for Moving Equipment; Transfer of Solids; Flow of Fluids; Fluid Transport Equipment; Heat Transfer and Heat Exchangers; Dryers and Cooling Towers; Mixing and Agitation; Solid-Liquid Separation; Disintegration, Agglomeration, and Size Separation of Particulate Solids; Distillation and Gas Absorption; Extraction and Leaching; Adsorption and Ion Exchange; Crystallization from Solutions and Melts; Chemical Reactors; Process Vessels; Other Topics, Costs of Individual Equipment; Appendices; Index.

This volume describes the characteristics of processes used in petroleum refining: upgrading light fractions (reforming and isomerization), converting distillates (catalytic cracking, hydrocracking, and associated equipment),

converting residues (visbreaking, coking hydroconversion), and reducing air and water pollution (white product sweetening, acid gas, stack gas, and waste water treatment). This book is available in French Under the title "le raffinage du pétrole. Tome 3. Procédés de transformation". Contents : 1. Introduction. 2. Basic principles governing chemical changes. 3. Industrial catalysts. 4. Catalytic reforming. 5. Catalytic cracking. 6. Isomerization of light paraffins. 7. Aliphatic alkylation. 8. Olefin etherification. 9. Oligomerization. 10. Hydrocracking. 11. Visbreaking of residues. 12. Coking. 13. Residue hydroconversion. 14. Hydrogen production. 15. White products refining by sweetening. 16. Hydrotreating. 17. Acid gas treatment. 18. Desulfurization of stack gases. 19. Water treatment. References. Index.

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Chemical reaction engineering is at the core of chemical engineering education. Unfortunately, the subject can be intimidating to students, because it requires a heavy dose of mathematics. These mathematics, unless suitably explained in the context of the physical phenomenon, can confuse rather than enlighten students. Bearing this in mind, Reaction Engineering Principles is written primarily from a student's perspective. It is the culmination of the author's more than twenty years of experience teaching chemical reaction engineering. The textbook begins by covering the basic building blocks of the subject—stoichiometry, kinetics, and thermodynamics—ensuring students gain a good grasp of the essential concepts before venturing into the world of reactors. The design and performance evaluation of reactors are conveniently grouped into chapters based on an increasing degree of difficulty. Accordingly, isothermal reactors—batch and ideal flow types—are addressed first, followed by non-isothermal reactor operation, non-ideal flow in reactors, and some special reactor types. For better comprehension, detailed derivations are provided for all important mathematical equations. Narrative of the physical context in which the formulae work adds to the clarity of thought. The use of mathematical formulae is elaborated upon in the form of problem solving steps followed

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by worked examples. Effects of parameters, changing trends, and comparisons between different situations are presented graphically. Self-practice exercises are included at the end of each chapter.

The first two editions of Concise Chemical Thermodynamics proved to be a very popular introduction to a subject many undergraduate students perceive to be difficult due to the underlying mathematics. With its concise explanations and clear examples, the text has for the past 40 years clarified for countless students one of the most complicated bran
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A Practical, Up-to-Date Introduction to Applied Thermodynamics, Including Coverage of Process Simulation Models and an Introduction to Biological Systems Introductory Chemical Engineering Thermodynamics, Second Edition, helps readers master the fundamentals of applied thermodynamics as practiced today: with extensive development of molecular perspectives that enables adaptation to fields including biological systems, environmental applications, and nanotechnology. This text is distinctive in making molecular perspectives accessible at the introductory level and connecting properties with practical implications. Features of the second edition include Hierarchical instruction with increasing levels of detail: Content requiring deeper levels of theory is clearly delineated in separate sections and chapters Early introduction to the overall perspective of composite systems like distillation columns, reactive processes, and biological systems Learning objectives, problem-solving strategies for energy balances and phase equilibria, chapter summaries, and “important equations” for every chapter Extensive practical examples, especially coverage of non-ideal

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mixtures, which include water contamination via hydrocarbons, polymer blending/recycling, oxygenated fuels, hydrogen bonding, osmotic pressure, electrolyte solutions, zwitterions and biological molecules, and other contemporary issues Supporting software in formats for both MATLAB® and spreadsheets Online supplemental sections and resources including instructor slides, ConcepTests, coursecast videos, and other useful resources

Advances in Chemical Engineering

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