



THE NEWEST BOOKS IN CHEMICAL ENGINEERING FROM MCGRAW-HILL

GAS - LIQUID REACTIONS

P. V. DANCKWERTS, University of Cambridge.
256 pages \$11.50

This book synthesizes all that is known of gas-liquid reactions to date. It concentrates on the effects of reactions on the rate of absorption of gases into liquids, and the dimensions of industrial and laboratory equipment needed for carrying out this process. The reader will find the scientific basis of the subject clearly set out and rigorously developed, and the methods of practical calculation presented and illustrated by numerical examples. Many pertinent references are made to relevant publications and to the literature in general.

HEAT TRANSFER, Second Edition

BENJAMIN GEBHART, Cornell University. 608 pages, \$18.50

Although different in many respects from its predecessor, this text has retained its original orientation: to present a description of the more important physical processes, theories, and methods of analysis utilized in the field of heat transfer. In order to accomplish this purpose, the author has begun with a relatively rigorous examination of the fundamentals and progressed to an up-to-date account of the state-of-the-art in several very important new areas in heat transfer, e.g., radiation transport and natural convection.

THERMODYNAMICS

JACK P. HOLMAN, Southern Methodist University. 384 pages, \$13.50

The emphasis in this introductory text is on simplicity, clarity, and teachability. It covers both macroscopic and microscopic thermodynamics, and introduces the topic of transport gases. Conventional power cycle applications and introductory material on direct energy conversion schemes are also presented. Numerous examples are included and the text utilizes a two-color format.

SEPARATION PROCESSES

C. JUDSON KING, University of California, Berkeley. *McGraw-Hill Series in Chemical Engineering*. 736 pages (tent.) \$19.50

Departing from the classical approach to the

subject, this text treats industrial separations as a general problem, and stresses the many common aspects of the functioning and analysis of different separation processes, e.g., distillation, absorption, extraction, etc. The author's purpose is to promote a basic understanding of the concepts underlying the selection, behavior, and computation of separation processes, as well as to convey the "flavor" of real process engineering.

CAVITATION

ROBERT T. KNAPP; JAMES W. DAILY and FREDERICK G. HAMMITT, both of the University of Michigan. 728 pages (tent.), \$25.00

Using a strong physical approach as its framework, this book discusses: (1) the genesis and occurrence of cavitation as a hydrodynamic phenomena; (2) its effects on flow properties; and (3) equipment performance. The book's single most important feature is its careful examination of the physical characteristics of cavitation as it is observed, the supporting analytical descriptions, and the discussion of particular practical experimental situations in terms of the basic mechanics of the phenomenon.

DESCRIBING CHEMICAL ENGINEERING SYSTEMS

WILLIAM E. RANZ, University of Minnesota. 256 pages, \$9.95

With the intention of demonstrating how physical and mathematical models are built, this participation textbook discusses states and actions of physical and chemical systems; shows the detailed development of material and energy balances; and includes interactions of simple connected systems as they are applied to chemical engineering. Numerous questions and worked-out examples dominate the text.

THERMODYNAMICS, Second Edition

WILLIAM C. REYNOLDS, Stanford University. 496 pages, \$11.50

The basic macroscopic principles of thermodynamics are developed in this fundamental text with insight obtained by consideration of the microscopic aspects of matter. Throughout, the author uses the basic conceptual ideas of statistical thermodynamics rather than its details. Disorder, randomness, and uncertainty notations are used in conjunction with the Gibb's definition of

CHEMICAL ENGINEERING EDUCATION

entropy to provide an intuitive basis for the second law postulate.

ENGINEERING THERMODYNAMICS

WILLIAM C. REYNOLDS, Stanford University and HENRY C. PERKINS, University of Arizona. 608 pages, \$12.50

The first seven chapters of this book are identical to those in *Thermodynamics, Second Edition*. However, the remaining chapters emphasize applications to *actual* engineering systems. The material on power systems has been expanded, and chapters on compressible flow and heat transfer included. There are no detailed statistical thermodynamic calculations in this version, though the statistical concepts remain in the fundamental development of the first seven chapters and are used later in qualitative ways.

PRINCIPLES OF POLYMER SYSTEMS

FERDINAND RODRIGUEZ, Cornell University. 432 pages, \$18.50.

Providing information on all important phases of polymers, this text enables the student to describe polymers quantitatively and manipulate quantitative data to predict and correlate the behavior of real polymer systems. This is accomplished by: (1) relating, wherever feasible, the qualitative behavior of polymer systems to everyday examples, and (2) including numerous problems that give the student experience in the quantitative behavior of these systems.

CHEMICAL ENGINEERING KINETICS, Second Edition

J. M. SMITH, University of California, Davis. 544 pages (tent.), \$15.50 (tent.). Available Spring, 1970

With the general purpose of acquainting students with the tools necessary to design new chemical reactors and predict the performance of existing ones, this book develops principles of kinetics and reactor design and then applies them to actual chemical reactors. Emphasis is placed on real reactions using experimental rather than hypothetical data. Kinetics, homogeneous reactions, heterogeneous catalytic and non-catalytic reactors, and residence time distribution effects are treated in detail.

PROGRAMMED THERMODYNAMICS

Volume 1: 272 pages, \$5.95

Volume II: 288 pages, \$5.95

CHARLES E. WALES, University of West Virginia.

These programmed-learning volumes cover the material ordinarily presented in a first course in classical thermodynamics. Volume I is devoted to the first law of thermodynamics; Volume II to the second law. Since they are entirely self-contained, they can be used as core texts or as supplements. Throughout, emphasis is placed on the gradual analysis of problems and processes, and the translation among graphical, verbal, and mathematical statements.

ONE-DIMENSIONAL TWO-PHASE FLOW

GRAHAM B. WALLIS, Dartmouth College. 416 pages, \$16.50

Useful as both a text and reference, this book fulfills three major functions: (1) it serves as a basic introductory book in the field; (2) presents basic principles, methods, nomenclature, and kinematic descriptions; and (3) coordinates the various disciplines, e.g., mechanical, aero-chemical, which make use of similar techniques. This is the first book that treats flows of solid-liquid, liquid-gas, and gas-solid mixtures in ducts, channels, and nozzles in any detail and with such a broad range of practical applications.

THERMODYNAMICS, Second Edition

KENNETH WARK, JR., Purdue University. 832 pages (tent.), \$16.50 (tent.)

The important change in this revision is that the concept of entropy and the second law of thermodynamics are now approached via separate and independent classical and statistical viewpoints. The major portion of the text is developed from a set of postulates and definitions based on a macroscopic outlook on matter. As a result, the instructor can teach the material using either a combined classical-statistical approach, or a purely macroscopic viewpoint.



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