

# McGraw-Hill Presents

## COMPUTER-AIDED ANALYSIS IN HEAT TRANSFER

J. ALAN ADAMS and DAVID F. ROGERS, both of the United States Naval Academy. 1973, 480 pages, \$17.00

A balanced approach between theory and analysis/application of that theory is presented for all three modes of heat transfer. A thorough development of the methods for formulating mathematical models in terms of non-dimensional parameters is stressed. Well documented, interactive computer programs, written in the BASIC programming language, are an integral part of the text.

## METALLURGICAL THERMODYNAMICS

DAVID R. GASKELL, University of Pennsylvania. 1973, 500 pages (tent.), \$19.50 (tent.)

This new text provides a systematic illustration of the application of modern thermodynamics to the determination of equilibria in metallurgical systems. After discussing the basic laws and introducing the necessary thermodynamics functions, application is made to increasingly complex systems in the sequence, reactions between gases, reactions between gases and pure condensed phases, reactions between gases and condensed solutions, reactions in condensed solutions and electrochemical reactions.

## PROCESS MODELING, SIMULATION, AND CONTROL FOR CHEMICAL ENGINEERS

WILLIAM L. LUYBEN, Lehigh University. *McGraw-Hill Series in Chemical Engineering*. 1973, 558 pages, \$18.50

Professor Luyben has devoted his book to presenting only useful, state-of-the-art, applications-oriented tools and techniques most helpful for understanding and solving practical dynamics and control problems in chemical engineering systems. Written for the undergraduate student, this text offers a *unified, integrated* treatment of mathematical modeling, computer simulation, and process control.

## MAN AND HIS TECHNOLOGY

ENGINEERING CONCEPTS CURRICULUM PROJECT, State University of New York. 1973, 400 pages (tent.), \$7.50 (tent.). A Casebook of Problems will be available.

MAN AND HIS TECHNOLOGY introduces a new kind of science for *all* students in a text that is fun to read, easy to understand, and brilliant in concept. Unveiled is a humanistic view of technology and change stressing "technological literacy" and the interaction of society, nature, and the man-made world. The reader is offered a look inside technology today including informa-

tion systems, modeling, communication with machines, and decision making. Students from all disciplines are challenged to ask questions about science and technology and then guided into developing the skills necessary to relate technology to their own experience and communities.

## APPLIED STATISTICAL MECHANICS: Thermodynamic and Transport Properties of Fluids

THOMAS M. REED and KEITH E. GUBBINS, both of the University of Florida. *McGraw-Hill Series in Chemical Engineering*. 1973, 496 pages, \$18.50

With an emphasis on applications, APPLIED STATISTICAL MECHANICS is an introduction to the various ways in which statistical thermodynamics and kinetic theory can be applied to systems of chemical and engineering interest. Presented is a fundamental, up-to-date treatment of statistical-mechanics with primary interest focused on molecular theory as a basis for correlating and predicting physical properties of gases and liquids. Material on recent theoretical approaches such as perturbation theory and the statistical-mechanics of nonspherical molecules is included.

## AN INTRODUCTION TO ENGINEERING HEAT TRANSFER

JOHN R. SIMONSON, The City University, London. *McGraw-Hill Series in Mechanical Engineering*. 1973, 244 pages (tent.), \$10.50 (tent.)

With the guidance of this step-by-step introduction to the subject of heat transfer, the student is exposed to almost every aspect taught at the undergraduate level in engineering courses. In addition to the British units utilized, the new S.I. units are incorporated into the illustrative examples within the text. For the industrial reader, the treatment covers the transfer unit approach to heat exchanger design and the electrical analog network approach to radiation problems, as well as some of the latest empirical equations of convective heat transfer.

## CONSERVATION OF MASS AND ENERGY

JOHN C. WHITWELL and RICHARD K. TONER, both of Princeton University. 1973, 500 pages (tent.), \$12.95 (tent.)

Unique in chemical engineering literature is the treatment of degrees of freedom for material and energy balances. Either chemical or physical processing elements are handled in a unified manner. The authors have included the first law of thermodynamics, unsteady state mass and energy balances, and all pertinent physical chemistry required. The modular organization of material offers the instructor a wide choice for his particular syllabus.

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# A Hotbed Of Engineering Ideas

## FLUID MECHANICS

THEODORE ALLEN, JR., and RICHARD L. DITSWORTH, both of Arizona State University. 1972, 415 pages, \$15.50

Offers a unified treatment of fluid mechanics utilizing the student's background in thermodynamics and dynamics. Vectors are employed to formulate those physical laws which pertain to continuum fluid mechanics and a large number of illustrated problems is included.

## ANALYSIS OF HEAT AND MASS TRANSFER

E.R.G. ECKERT, University of Minnesota and ROBERT M. DRAKE, JR., Vice-President, *Combustion Engineering*, Windsor, Connecticut. *McGraw-Hill Series in Mechanical Engineering*. 1972, 750 pages, \$21.50

Acquaints the senior or graduate level student with the fundamentals of heat and mass transfer. Unlike most other books at this level, this single volume covers conduction, convection, and radiation.

## TRANSFER OPERATIONS

R. A. GREENKORN and D. P. KESSLER, both of Purdue University. 1972, 496 pages, \$16.50

Provides the student with a basic knowledge of the mechanisms by which momentum, heat, and mass are transferred and introduces the design and use of equations for momentum, heat, and mass.

## APPLIED NONLINEAR PROGRAMMING

DAVID M. HIMMELBLAU, University of Texas, Austin. 1971, 416 pages, \$18.50

Containing the latest information on existing methods of nonlinear programming, this advanced text is an excellent sourcebook for engineers working in optimization, operations research, and systems engineering.

## HEAT TRANSFER, Third Edition

JACK P. HOLMAN, Southern Methodist University. 1972, 496 pages, \$13.50

This elementary text offers a brief and concise treatment of *all* phases of heat transfer. New features include chapters on environmental problems, emphasis on numerical techniques in conduction problems and an increase in text examples.

## EXTENDED SURFACE HEAT TRANSFER

DONALD Q. KERN and ALLEN D. KRAUS, University of South Florida. 1972, 714 pages, \$24.50

A systematically organized treatment of theory and application proceeding from an analysis of the simplest extended surface through design and application of mass-producible components for complex systems.

## THERMAL RADIATION HEAT TRANSFER

ROBERT SIEGEL, Lewis Research Center, NASA and JOHN R. HOWELL, University of Houston. 1971, 832 pages, \$18.50

To establish a solid foundation for future study, the authors have examined the fundamentals in detail. The work deals generally with radiative behavior of materials, radiation between surfaces, and gas radiation.

## ELEMENTS OF TRANSPORT PHENOMENA

LEIGHTON E. SISSOM and DONALD R. PITTS, both of Tennessee Technological University. 1971, 704 pages, \$18.50

Assuming a basic knowledge of differential equations and vector calculus, this text offers a modern, integrated treatment for the study of heat, mass, and momentum transfer.

## MOMENTUM, ENERGY, AND MASS TRANSFER IN CONTINUA

JOHN C. SLATTERY, Northwestern University. 1971, 704 pages, \$19.50

An integrated introduction for the first-year graduate student which offers original treatment of four subjects often taught separately: fluid mechanics, thermodynamics, heat transfer and mass transfer.

## COMPRESSIBLE-FLUID DYNAMICS

PHILIP A. THOMPSON, Rensselaer Polytechnic Institute 1971, 688 pages, \$17.50

Useful to students and professionals in diverse fields, this text emphasizes the fundamentals of compressible-fluid motion instead of its techniques.

## CHEMICAL ENGINEERING KINETICS, Second Edition

J. M. SMITH, University of California, Davis. 1970, 544 pages, \$16.50

Acquaints the student with the tools necessary to design new chemical reactors and predict the performance of existing ones. The principles of kinetics and reactor design are developed.

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