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AIR POLLUTION: PHYSICAL AND CHEMICAL FUNDAMENTALS

JOHN H. SEINFELD, California Institute of Technology. 1975, 400 pages, $22.50.

Here is a quantitative and rigorous approach to the basic science and engineering underlying the air pollution problem. The most comprehensive single book available on the subject, it provides an in-depth treatment of air pollution chemistry, atmospheric transport processes, combustion sources and control methods.

SYSTEMS ANALYSIS AND WATER QUALITY MANAGEMENT

ROBERT V. THOMANN, Manhattan College. 1972, 286 pages, $18.50.

Using both mathematical models of environmental responses and management and control schemes, the text provides a series of analytical tools for describing and forecasting the effects of the surrounding environment on the water quality of a stream or estuary, presents information on water quality criteria and wastewater inputs, establishes a point of departure for evaluating the worth of water quality improvement projects and discusses the benefits of applying cost/benefit analysis to engineering.

ENVIRONMENTAL SYSTEMS ENGINEERING

LINVIL G. RICH, Clemson University. *McGraw-Hill Series in Water Resources and Environmental Engineering.* 1973, 405 pages, $17.50. Solutions Manual

While covering a broad spectrum of environmental topics, the focus is on the system as a whole and how its components interact rather than the components themselves. This systems approach is used in formulating and analyzing environmental phenomena, as well as in the selection and design of engineered facilities needed for controlling the environment. Although water environment is considered in greatest detail, also included are air pollution and its control, solid waste management and radiological health. The mathematics of systems analysis and computer solutions is used extensively.

AIR POLLUTION

H. C. PERKINS, University of Arizona. 1974, 407 pages, $16.50. Solutions Manual

To date, this is the only truly engineering-oriented text on the subject that draws upon the student's background in analyzing and solving problems in air pollution. The treatment is sufficiently detailed to enable chemical, mechanical, and sanitary engineering students to solve a variety of problems. A complete discussion of the global effects of air pollution is included along with numerous applications-type problems.

SOURCE TESTING FOR AIR POLLUTION CONTROL

HAL B. H. COOPER, JR., University of Texas at Austin, and AUGUST T. ROSSANO, JR., University of Washington. 1971, 278 pages, $14.50.

A discussion of principles and methods used for testing of gaseous and particulate materials being emitted from industrial, combustion and other sources is presented in this informative text. Organized to give the reader a logical presentation of the steps taken in source testing, the book includes an extensive examination of the equipment, methodology, sampling, and analytical techniques in use for gaseous and particulate particles.

AIR POLLUTION CONTROL: GUIDEBOOK FOR MANAGEMENT

AUGUST T. ROSSANO, JR., University of Washington, and HAL B. H. COOPER, JR., University of Texas at Austin. 1969, 214 pages, $19.50.

The book provides a comprehensive and balanced treatment of the complex technical and administrative nature of air pollution problems. All major elements of the field are included to provide both a text and background reference of the subject in one volume.

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JUI SHENG HSIEH, Newark College of Engineering. 1975, 512 pages, $18.50.

A clear and unified treatment of various thermodynamic systems, this new text illustrates the wide range of applicability of the basic laws of thermodynamics. Beginning with a comprehensive review of the first and second laws, the text examines thermodynamic relations for single- and multi-component compressible systems; stability; phase and chemical equilibrium; thermodynamics of elastic system, interfacial-tension system, magnetic system, and electric system; cryogenics; and the third law and negative Kelvin temperatures.

BASIC ENGINEERING THERMODYNAMICS, Second Edition

MARK W. ZEMANSKY, Emeritus, City College of the City University of New York, MICHAEL M. ABBOTT and HENDRICK C. VAN NESS, both of Rensselaer Polytechnic Institute. 1975, 492 pages, $16.50. Solutions Manual

Important changes in this revision include a consolidation and unification of material resulting in fewer chapters, the addition of a large number of worked examples, extensive use of SI units, and use of the same sign conventions for both work and heat. Also featured are an expanded treatment of refrigeration and power cycles and extension of the discussion on flow processes to include adiabatic flow processes, especially transonic flows.

METROPOLITAN TRANSPORTATION PLANNING

JOHN W. DICKEY (Senior Author), Virginia Polytechnic Institute and State University. 1975, 550 pages, $19.50.

While emphasizing the transportation planning process, the contributors to this volume offer an insight into an interdisciplinary approach to solving metropolitan transportation problems. Consisting of engineers and planners, an architect, urban designer and landscape architect, the authors provide a modular "problem solving" framework into which further information or various aspects of metropolitan transportation planning can be integrated.

INTRODUCTION TO CHEMICAL ENGINEERING THERMODYNAMICS, Third Edition

J. M. SMITH, University of California at Davis, and H. C. VAN NESS, Rensselaer Polytechnic Institute. *McGraw-Hill Series in Chemical Engineering*. 1975, 632 pages, $19.50.

Including a new chapter on solution thermodynamics, the third edition of this successful fundamentals text maintains a unified treatment of thermodynamics from a chemical engineering viewpoint. The chapters on phase and chemical-reaction equilibrium have been rewritten and expanded in order to present a coherent exposition of these topics.

MASS TRANSFER

THOMAS K. SHERWOOD, ROBERT L. PIGFORD, and CHARLES R. WILKE, all of the University of California, Berkeley. 1975, 672 pages, $19.50.

Compared to the 1952 version *Absorption and Extraction,* this volume is substantially more sophisticated, providing a much broader coverage of mass transfer. Emphasis is on the practical aspects and real problems that demand an understanding of theory. Yet, theoretical derivations are minimized by explicit citation of over 1,100 contemporary references.

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

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By developing principles of kinetics and reactor design and applying them to actual chemical reactors, this text acquaints students with the tools necessary to design new chemical reactors and predict the performance of existing ones. Emphasis is placed on real reactions using experimental rather than hypothetical data.

MASS TRANSFER OPERATIONS, Second Edition

ROBERT E. TREYBAL, New York University. 1968, 688 pages, $19.50.

The basic approach of this revised text, which treats the major subjects in categories of gas-liquid, liquid-liquid and fluid-solid contact, has been retained as has its application of modern theories and data to practical design of equipment. A major addition to the book includes material on multi-component gas absorption and distillation.

SCIENTIFIC STREAM POLLUTION ANALYSIS

NELSON LEONARD NEMEROW, Syracuse University. 1974, 353 pages, $16.50.

A careful balance of the hydrological, chemical and mathematical concepts involved in the evaluation of stream quality is achieved in this comprehensive description of the analysis of water pollution. Practice problems are presented to demonstrate the difficulties surrounding stream analysis, and computation techniques for deoxygenation and reaeration rates are described and analyzed, as are all factors affecting oxygen concentration to live and overall oxygen sag curve in a stream.

PROCESS MODELING, SIMULATION, AND CONTROL FOR CHEMICAL ENGINEERS

WILLIAM L. LUYBEN, Lehigh University. 1973, 558 pages, $19.50. Solutions Manual

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.

APPLIED STATISTICAL MECHANICS: Thermodynamic and Transport Properties of Fluids

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With emphasis on applications, this text introduces 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.

PRINCIPLES OF NON-NEWTONIAN FLUID MECHANICS

G. ASTARITA, University of Naples and G. MARUCCI, University of Palermo. 1974, 289 pages, $19.50.

An accessible yet rigorous treatment of non-Newtonian fluid mechanics is provided in this advanced text. Modern continuum mechanics and rheology are presented and developed up to the solution of cases of fluid mechanics problems, particularly for polymeric materials. Along with a consideration of nonlinear thermodynamics, the book offers a critical review and classification of a large number of constitutive equations.

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