

Six Good Reasons To Choose A McGraw-Hill Text

OPTIMIZATION THEORY AND PRACTICE

GORDON S. G. BEVERIDGE, Heriot-Watt University, Edinburgh and ROBERT S. SCHECHTER, University of Texas. Available Winter, 1970

This text encompasses techniques from all aspects of mathematical optimization with the objective of introducing these methods to seniors and graduate students. It is organized to illustrate the interrelationships among optimization methods, their ranges of applicability, and their comparative effectiveness. The authors provide fully worked-out examples throughout the book to aid the student, and discuss the main techniques in detail to give the student competence in their applications.

OPTIMIZATION BY VARIATIONAL METHODS

MORTON M. DENN, University of Delaware. 416 pages, \$16.50

In order to present a comprehensive examination of optimal process design and control, the author has simultaneously developed both analytical and computational considerations and then united them with detailed practical applications. The text utilizes the "variational" approach, incorporating traditional differential calculus procedures and associated computational techniques; classical calculus of variations; Pontryagin-type "minimum principles" and related computational methods; and dynamic programming. Many of the examples cited are examined at various levels of sophistication and solved by several different procedures.

ENGINEERING THERMODYNAMICS

WILLIAM C. REYNOLDS, Stanford University and HENRY C. PERKINS, University of Arizona. Available Winter, 1970

The first half of this book develops the fundamentals of thermodynamics using microscopic insight as the basis for macroscopic postulates. Disorder, randomness, and uncertainty notions are used in conjunction with the Gibbs definition of entropy to provide an intuitive basis for the second law postulate. The remainder of the book applies the statistical concepts that have already been developed to actual engineering systems. Material on power systems and chapters on compressible flow and heat transfer are included.

ENGINEERING DIFFERENTIAL SYSTEMS

ROBERT D. KERSTEN, Florida Technological University. 224 pages, \$13.50

This is the first book to treat both the analytical as well as the numerical methods in engineering. The author's thesis is that a complete solution to a given engineering differential system can be developed by using these approaches to connect four essential parts of the system: (1) properly understood phenomena; (2) a correct mathematical model of the phenomena; (3) a tentative solution; and (4) a proper application of boundary or initial conditions or both.

DESCRIBING CHEMICAL ENGINEERING SYSTEMS

WILLIAM E. RANZ, University of Minnesota. Available Winter, 1970

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. This workbook is based on the premise that a student learns by doing—therefore, numerous questions and worked-out examples dominate the text.

MODERN METHODS OF ENGINEERING COMPUTATION

ROBERT L. KETTER and SHERWOOD P. PRAWEL, JR., both of the State University of New York at Buffalo. 500 pages, \$15.50

This text (1) presents an introduction to the field of modern computational methods in terms intelligible to the second- or third-year student; (2) develops from these various methods the first principles that are basic and/or in general usage and indicates the interrelationships among them; and (3) views the material specifically but yet generally enough to give the student the background he will need in numerical methods to cope with future engineering courses. Throughout, the emphasis is on the methodology of the solution process and the universality of its application to problems in all fields of engineering and the applied sciences.

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