

BOOKS

Basic Principles and Calculations in Chemical Engineering, Second Edition, David M. Himmelblau, Prentice-Hall, Inc., Englewood Cliffs, N. J. (1967). 483 pages, \$12.00.

This revision of a very popular work on basic chemical engineering calculations retains the good features of the first edition, but updates the latter by adding new references, by revising some problems and adding many new ones, by expanding the discussion of some topics, and by minor reorganization of other material.

The student is introduced to basic concepts through clear discussions of the principles involved followed by well chosen example problems. The problems are quite varied in nature, so that the student never gets the idea that there is a rote procedure for solving them. By studying the examples in the book and working problems at the ends of the chapters, the student learns to work from principles rather than stereotyped routines.

Chapter headings, which have been unchanged in the new edition, are "Introduction to Engineering Calculations," "Material Balances," "Gases, Vapors, Liquids, and Solids," "Energy Balances," "Combined Material and Energy Balances," and "Unsteady State Material and Energy Balances." In the chapter on material balances, increased emphasis has been given to the solution of material balance problems by algebraic techniques, but treatment of recycle calculations could well be extended. In the chapter on energy balances, considerable discussion of the thermodynamic concepts of internal energy, enthalpy, and heat capacities has been added. Introduction of thermodynamic concepts to the student at the sophomore level before getting into energy balances is worthwhile. The student cannot grasp the significance of some of the energy balance relations unless he has a sound concept of internal energy and enthalpy. In a number of instances the nomenclature has been altered and an increased mathematical rigor has been introduced. The latter modification reflects the increasing mathematical sophistication of present-day engineering students.

Another feature of the book which makes it an excellent teaching medium is the inclusion at the end of each chapter of concise statements on what the students should have learned from the chapter. The appendix contains a wide selection of useful data which complement nicely the hundreds of problems included in the book. Professor Himmelblau has obviously given

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a great deal of thought to what topics should be included and what should be left out, and his decisions appear to this reviewer to have been very good.

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ERRATUM

In "Diffusion and Dispersion in Porous Media" by Stephen Whitaker [Vol. 13, No. 3, pp. 420-427 (1967)], several errors should be corrected.

In the footnote on page 424, replace C with \tilde{C} . Also, in Equation (A6), replace $(D\delta_{jk} + R\beta_{jk}^I)$ with $D(\delta_{jk} + R\beta_{jk}^I)$. In Equation (A8), replace $(D + R\beta^I)$ with $D(1 + R\beta^I)$. In Equation (A9), replace $D + R\beta^I$ with $D(1 + R\beta^I)$. Finally, in Equation (B3), replace G_1^i with G_1^i .

Academic Openings

CHEMICAL ENGINEER, Ph.D., Citizen, to teach undergraduate and graduate courses depending upon interests. Active research projects. Permanent position. Close contacts with Bureau of Mines station with work on solid fuels. Immediate opening. Contact A. M. Cooley, Chemical Engineering Department, University of North Dakota, Grand Forks, North Dakota 58201.

ARIZONA STATE UNIVERSITY—Applications are invited for an academic position in Chemical Engineering, Ph.D. preferred. Duties include lecturing at the undergraduate and graduate levels and supervision of graduate research projects. Position starts either January or September 1968. Academic rank and salary dependent upon qualifications. Contact S. E. Craig, Acting Chairman, Chemical Engineering Department, Arizona State University, Tempe, Arizona 85281.

FACULTY POSITIONS—The University of Calgary. Applications are invited for the positions of Assistant and Associate Professor in the Department of Chemical Engineering. These positions offer challenge and opportunity in a young and growing engineering faculty. Duties include lecturing at the undergraduate and graduate levels and the supervision of graduate research projects. The major areas of research interest are systems engineering, environmental engineering with particular reference to pollution and fluid mechanics related to flow through porous media. At present a qualified staff member in the field of optimization and process control is urgently required. The applicant should have a doctorate in Chemical Engineering as well as interest and experience in one of the above research areas. Address inquiries and the names of three references to Dr. R. A. Ritter, Head, Department of Chemical Engineering, The University of Calgary, Calgary, Alberta, Canada.

UNIVERSITY OF NEW HAMPSHIRE, Durham, N. H. 03824. Dr. O. T. Zimmerman, Chairman, Chemical Engineering. Tel. 603-868-5511. Ext. 214. Ph.D. chemical engineer for undergraduate and graduate teaching and research. Rank and salary open. B.S., M.S. now offered; Ph.D. program planned to begin Sept. 1968. Start Sept. 1968.

ACADEMIC OPENINGS—Challenging positions available for one or more qualified Ph.D. Chemical Engineers in this rapidly growing Chemical Engineering Department. Newly created degree programs at both the graduate and undergraduate levels, along with new 10.5 million dollar facilities and equipment afford excellent opportunities for both teaching and research. All chemical engineering related specialties considered. Rank and salary open. Contact Dr. C. J. Major, Head, Department of Chemical Engineering, The University of Akron, Akron, Ohio 44304.

ACADEMIC OPENING—University of New Brunswick, Fredericton, New Brunswick, Canada. 1. Post-doctoral Fellowship available immediately for research in process dynamics. Some teaching if desired. Minimum salary \$7000 tax-free plus travel. 2. Post-doctoral Fellowships in Fire Science and Heat Transfer. One available immediately, one beginning July to October, 1968. Salary as above. 3. Assistant Professor. Research and Teaching. Interest in environmental or biochemical engineering preferred. Beginning July 1, 1968 or later. Salary \$9000 minimum. New facilities available.

UNIVERSITY OF SASKATCHEWAN, Saskatoon, Canada. Teaching position in Chemical Engineering. Applicants are invited for positions as Assistant and Associates Professor in Chemical Engineering. Duties will include lecturing in undergraduate and post-graduate classes and the supervision of research at the M.Sc. and Ph.D. levels. Applicants should have at least an M.Sc. and preference will be given to those with a

Ph.D. Salaries range up to \$11,700 (1967-68 scale) for Assistant Professors and up to \$15,500 (1967-68 scale) for Associate Professors. Applicants, curriculum vitae and the names of three referees should be sent to: Dr. K. J. McCullum, Dept. of Chemistry and Chemical Engineering, University of Saskatchewan, Saskatoon, Saskatchewan, Canada.

A DYNAMIC EXPANDING Chemical Engineering Department has faculty positions available for January or September, 1968. Teaching and research interests should be in the areas of thermodynamics, kinetics, electrochemical engineering, or polymers. A doctoral degree is required and publications are highly desirable. Salary and rank are open. The Department is entirely housed in a new building with reasonable teaching loads and a fine opportunity for research. Write to Dr. R. B. Grieves, Chairman, Department of Chemical Engineering, University of Kentucky, Lexington, Ky. 40506.