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BOOKS

Digital Computation for Chemical Engineers, Leon Lapidus, McGraw-Hill Book Company, Incorporated, New York (1962). 407 pages. $11.50

This book, as the title implies, is an exposition of the methods of functional approximation and equation solution involving numerical techniques which have come to be of such importance since the advent of the digital computer. The major text material contains two sections on approximation methods and sections on the solution of ordinary differential equations, solution of partial differential equations, matrix operations, and root-finding techniques. A final section devoted to optimization and control is, on comparison with the previous material, more of a quantitative introduction to the topic than an extensive discussion of computational methods. These subjects are certainly not restricted in their utility to chemical engineering alone; thus the presentation in each section is concerned primarily with development of the mathematics of these numerical techniques; computation examples at the end of each section illustrate the specific applications to problems of chemical engineering interest. The book, therefore, should be of interest to a much larger audience than the "...for Chemical Engineers" in the title would indicate.

The author has presented, described, and explained a large amount of material. The text is concise and well written, and if fault is to be found it results from the problems involved in presenting such a large range of subject matter. The section on matrix operations is notably more difficult to follow than the rest of the text, particularly for those who are encountering the material for the first time. This is the only section of the book which leaves one with the impression that the subject matter may be covered more clearly elsewhere.

As mentioned above, extensive numerical examples are given at the end of each section. In some cases it would have been advantageous to place these examples in closer proximity to the material they illustrate. It is certainly advisable that the reader refer to these examples as he follows each section; they are well chosen, to the point, and provide a valuable supplement to the text material.

Professor Lapidus has included in his presentation a large number of references pertinent to the development and extension of topics discussed in each section. The work is a welcome and valuable addition to the literature.

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