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Introduction to Control Theory With Applications to Process Control, Lowell B. Koppel, Prentice-Hall, Englewood Cliffs, N. J. (1968). 466 pages.

This is an excellent book for the chemical engineer as he makes the transition from classical to modern control theory. The material is presented entirely in terms of state variables. As such, the book is unique

in that problems and equations of interest to the chemical engineer are developed in terms of these variables. A review is presented of classical methods for continuous and discrete systems, yet, it is classical only in the sense that linear systems are used. A very definite modern approach is used to develop these linear systems.

The book would be better described as a graduate text in our present educational status in chemical engineering

process control. Although sections could be used for undergraduate students, a good background in elementary control as well as a reasonable knowledge of modern algebra are required. The appendix is excellent. Background material needed for studying each chapter is clearly and concisely presented. In fact, the appendix section on vectors and matrices presents a good review which would be of value to the scholar studying Transfer Operations.

The emphases in this text are stability, optimal control, and optimization for continuous and discrete systems, both linear and nonlinear. As indicated earlier, all material is developed from the state variable viewpoint. Excellent illustrated examples for systems which can be solved analytically are used throughout the text. The importance of the digital computer is readily recognized as the means for solving most practical problems.

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