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Book Review

Process Control Systems, by F. G. SHINSKEY, 1967; 367 pages. (*McGraw-Hill Book Company*, £5 12s.)

The gap between theory and practice in Process Control continues to grow. Although elegant techniques exist for the solution of many control problems the pay-off, in terms of industrial applications, so far reflects scant reward for the time and effort which have been spent to date on the application of modern control theory in the process industries. Although it has been suggested that the mathematics of modern control theory is a hindrance to its use by practising engineers I believe that very often the theories themselves do not meet the needs of real process control problems. Before much headway can be made towards the analytical design of more advanced process control systems a far greater understanding is required, among the control theorists, of the nature of physical and chemical processes, their dynamics and the real problems associated with the running and control of these processes.

A new look at process control is needed which combines that which is worth saving from the largely empirical control techniques which are currently employed in the industry with the advantages of a methodical approach to analysis and design which are claimed for modern control theory.

This book by Shinskey obviously sets out to provide such an approach. In particular it contains much useful classification of process characteristics and of the systems which are known to give satisfactory control characteristics. In this respect the book is admirable. However, the way in which control system design is approached is too sketchy and relies too much on the acceptance of results which have been obtained by others either for different plants or from mathematical generalisations of the problems. I believe the dangers of this kind of approach are severe, that each system must be treated on its merits and, therefore, that this textbook would be better if greater attention were paid to the methods by which results may be derived.

The book is to be completely recommended to control theorists as offering some insight into the nature of practical control problems. As a guide for process engineers into the methods of control system design it is less good but is still a vast improvement on most texts of its kind.

Difficult aspects of control such as nonlinearity, interaction, adaptation, optimisation are mentioned but only briefly and, while not providing all the tools necessary to deal with these problems, the author does at least survey the inherent advantages and disadvantages of particular control schemes.

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