

This Week's Citation Classic

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Kuo B C. *Analysis and synthesis of sampled-data control systems.*
Englewood Cliffs, NJ: Prentice-Hall, 1963. 528 p.
[University of Illinois, Urbana, IL]

This book covers the analysis and synthesis of sampled-data and digital control systems. Linear and nonlinear systems are included. The book was written as a graduate text as well as a reference for the practicing engineer. [The SCI® indicates that this book has been cited over 150 times since 1963.]

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"In 1957, I was a PhD candidate in electrical engineering at the University of Illinois at Urbana-Champaign. I was interested in control systems, and, at the time, sampled-data control systems were quite popular. I subsequently wrote my thesis on the subject of nonlinear sampled-data control systems. I received my degree in 1958, and stayed at Illinois to pursue a teaching career. At that time, I was fortunate to have the opportunity to teach an undergraduate course on control systems and a graduate course on sampled-data control systems. For teaching material and experience I generated my first two books, *Automatic Control Systems*,¹ the first edition of which appeared in 1962, and the book that is cited here,

Analysis and Synthesis of Sampled-Data Control Systems, published in 1963. Both books were published by Prentice-Hall. *Automatic Control Systems* is now in its third edition,² and the fourth edition is going to be out in early 1982. During the 1960s, the aerospace industry was flourishing, and digital and sampled-data control systems enjoyed special attention. The book, *Analysis and Synthesis of Sampled-Data Control Systems*, was written as a graduate textbook, and received its share of the market also as a reference book for practicing engineers. The book covers the conventional analysis and design techniques of linear digital control, and certain aspects of nonlinear systems are also covered.

"In 1970, I published a modern control version of the book called *Discrete-Data Control Systems*.³ The new book never did measure up to the 1963 edition in terms of sales. One reason is perhaps because the majority of practicing engineers still favor the conventional design methods as opposed to the modern control theory. In view of this, I prepared a new book in 1980 called *Digital Control Systems*.⁴ The new book combines the best of conventional methods with modern approaches. Although the 1963 book is no longer available from the publisher, I still get requests for the book regularly. The fact that the book has been constantly in demand and frequently cited must be due to the clear style in which it was written and the timeliness of the material included."

1. **Kuo B C.** *Automatic control systems.* Englewood Cliffs, NJ: Prentice-Hall, 1962. 504 p.
2., *Automatic control systems.* Englewood Cliffs, NJ: Prentice-Hall, 1975. 640 p.
3., *Discrete-data control systems.* Englewood Cliffs, NJ: Prentice-Hall, 1970. 399 p.
4., *Digital control systems.* New York: Holt, Rinehart & Winston, 1980. 730 p.