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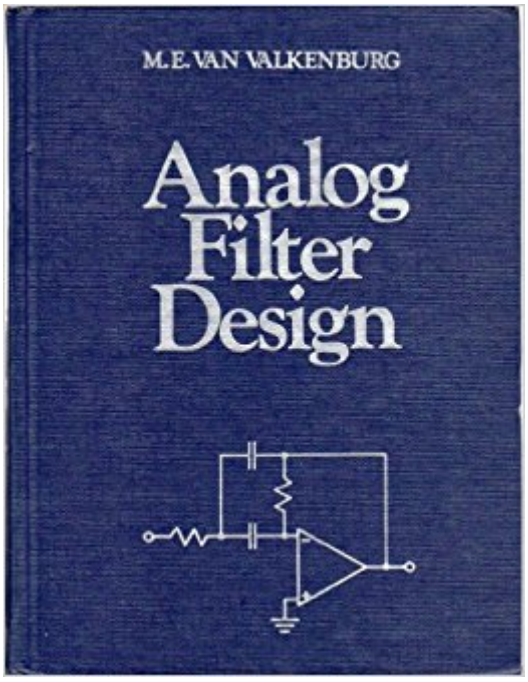
Analog Filter Design



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Synopsis

This classic was the first to fill the need for an undergraduate text in analog filters for electrical engineering. Intended for juniors and seniors with a background in introductory circuits, including Laplace transforms, the text focuses on inductorless filters in which the active element is the operational amplifier (op-amp). Passive LCR filters are excluded except as prototypes from which an active equivalent is then found. Students learn the importance of op-amps to analog systems, which Van Valkenburg equates with the significance of the microprocessor to digital systems. Because the book is inteded for undergraduates, sophisticated mathematics has been avoided wherever possible in favor of algebraic derivations. Design topics require at most a hand-held calculator.

Book Information

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Customer Reviews

(Reviewed by a practicing electrical engineer)This book is an excellent introductory text about analog filter design. It was written for use in teaching a junior-senior level undergraduate class at the University level. The book begins with a review of basic op amp circuits and then progresses to simple one-pole circuit designs. From there, the author builds a step-by-step theoretical background for active filter design, starting with the most fundamental two-pole building block (the biquad circuit), and then showing how to use these to design Chebyshev, Butterworth, and Bessel filter characteristics of any number of poles. Cauer, Inverse Chebyshev, and switched capacitor designs

are also covered. Other highly useful chapters cover delay equalization, sensitivity to component variations, as well as a general design approach for choosing appropriate filter characteristics for a design requirement. The book's main focus is on active filter design using op amp's, although there is also one chapter devoted to passive filter design. Design is stressed in the examples and problems from the very beginning pages, as opposed to mere mathematical analysis. The mathematics are fairly straightforward, mostly algebra, and the text is fairly easy to read and follow. Examples illustrate each chapter segment, and each chapter has questions at the end. I would recommend this book for anyone seeking a basic theoretical understanding and design capability for active filters. (Probably other introductory texts would be better for passive filters.) This is not a "handbook" or "filter cookbook"; it actually lays the theoretical and mathematical groundwork for the filters it teaches you to design.

I was looking for a great book on electronic analog filter design and I have to say that this book is what every person interested on this topic have to buy.It explains very well in detail from the basics all the concepts, from the passive and op amp active circuit analysis to each frequency response.This is great book, along with "Filtering in the Time and Frequency Domains" by H.J. Blinchikoff & A. I. Zverev

Love this book. Great introduction to both op amps and filters, and without too much advanced math. Still need a pencil and pad when reading it, but that's the joy of a good technical book.

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