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Nota di contenuto	Mixed-Mode Signal Processing -- Some Key Points from Network Theory -- Filter Specifications and Approximation Theory (The Mathematical Approach to the Approximation Problem) -- Filter Tables and Computer Programs (The Physical Approach to the Approximation Problem) -- An Introduction to Signal-Flow Graph Theory -- Controlled Sources, Nullors, Active Gain Devices, Impedance Converters and Inverters (Gyrators, NICs, FDNRs, Current Conveyors) -- Passive LCR and Active-RC Filters -- A Classification of Single-Amplifier Biquads -- A Morphological Approach to the Design of Active Network Elements -- Active Filter Design Techniques -- Some Elements of Sensitivity Theory -- Random Signals and Noise -- Deriving Current-Based from Voltage-Based Circuits -- From Continuous Time to Discrete Time -- Sampling Theorem and Aliasing -- The Laplace Transform of Sampled Signals: The z-Transform -- Analysis of Switched-Capacitor Filters -- The

Four-Port Analysis of Switched-Capacitor Circuits -- Design of Switched-Capacitor Filters -- The Transmission Matrix of SC Circuits and its Signal-Flow Graph.

Sommario/riassunto

This textbook is designed for graduate-level courses, and for self-study, in analog and sampled-data, including switched-capacitor, circuit theory and design for ongoing, or active electrical engineers, needing to become proficient in analog circuit design on a system, rather than on a device, level. After decades of experience in industry and teaching this material in academic settings, the author has extracted many of the most important and useful features of analog circuit theory and design and presented them in a manner that is easy to digest and utilize. The methodology and analysis techniques presented can be applied to areas well beyond those specifically addressed in this book. This book is meant to enable readers to gain a 'general knowledge' of one aspect of analog engineering (e.g., that of network theory, filter design, system theory and sampled-data signal processing). The presentation is self-contained and should be accessible to anyone with a first degree in electrical engineering. Presents material in the form of slides, with accompanying text; Demonstrates how the design of many circuit devices, e.g. gyrators, impedance converters, etc. can be accomplished easily, using the 'Morphological Method'; Includes numerous examples from different fields, e.g. circuit devices, active-RC and switched-capacitor circuits and filters, etc.; Emphasizes creative design methods and techniques.