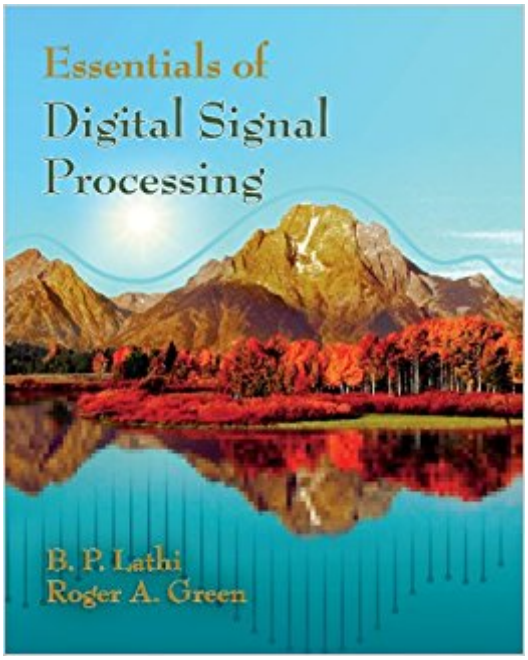
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Essentials Of Digital Signal Processing



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Synopsis

This textbook offers a fresh approach to digital signal processing (DSP) that combines heuristic reasoning and physical appreciation with sound mathematical methods to illuminate DSP concepts and practices. It uses metaphors, analogies, and creative explanations along with carefully selected examples and exercises to provide deep and intuitive insights into DSP concepts. Practical DSP requires hybrid systems including both discrete- and continuous-time components. This book follows a holistic approach and presents discrete-time processing as a seamless continuation of continuous-time signals and systems, beginning with a review of continuous-time signals and systems, frequency response, and filtering. The synergistic combination of continuous-time and discrete-time perspectives leads to a deeper appreciation and understanding of DSP concepts and practices. Notable Features 1. Written for upper-level undergraduates 2. Provides an intuitive understanding and physical appreciation of essential DSP concepts without sacrificing mathematical rigor 3. Illustrates concepts with 500 high-quality figures, more than 170 fully worked examples, and hundreds of end-of-chapter problems 4. Encourages student learning with more than 150 drill exercises, including complete and detailed solutions 5. Maintains strong ties to continuous-time signals and systems concepts, with immediate access to background material with a notationally consistent format, helping readers build on their previous knowledge 6. Seamlessly integrates MATLAB throughout the text to enhance learning 7. Develops MATLAB code from a basic level to reinforce connections to underlying theory and sound DSP practice

Book Information

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Customer Reviews

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B. P. Lathi holds a PhD in Electrical Engineering from Stanford University and was previously a Professor of Electrical Engineering at California State University, Sacramento. He is the author of eight books, including Signal Processing and Linear Systems, 2nd edition (2004) and Modern Digital and Analog Communications Systems, 4th edition (2009, with Zhi Ding).Roger A. Green is an Associate Professor of Electrical and Computer Engineering at North Dakota State University. He holds a PhD from the University of Wyoming. He is co-author, with B. P. Lathi, of Signal Processing and Linear Systems, 2nd edition.

Since my undergraduate days more than 40 years ago, I have been a fan of Professor Lathi’s books. In general they cannot be beat for clarity, lucid explanations, and solid example problems. For these reasons they are excellent for reference and self-study. Unfortunately, this book falls somewhat short when compared to his others. First, there are some inconsistencies of some definitions from earlier books to this one. For example in ’Signal Processing & Linear Systems’ the Sinc function is defined as Sin(x)/x, here it is defined as Sin(Pi x)/(Pi x). Both are legitimate definitions just not consistent from one book to the other. My other major gripe is that there is no answer key to the example problems at the back of each chapter. There are for the Drill problems but these are sparse. For those who use a book for self-study problem answers are critical for complete understanding of the material. Answer keys are usually only available for course instructors. The usual answer for this is that instructors need the answers so that they can use them for homework or exam problems. Any instructor who cannot make up their own test problems should look for another line of work. One star off for the issue of definitions and one star for lack of an answer key.

Like the clarity and humor with which this book presents the material.I would put it in the top 10 of best DSP books.DR. Lathi is an excellent writer and I have his other books which are model of good engineering writing.Charan Langton

Ok this book is very good in terms of explanations, giving additional insight to concepts, and linking the relation between continuous and discrete time signals. However I have some issues with how some chapters and sections are organized. For example, it would make more sense to have the z transform introduced before the discrete Fourier transform. Also it would make more logical sense to group the discussion of the properties of the z transform with the introduction of the z transform and not after the section on the inverse z-transform. Additionally, it lacks detailed procedure or method of how to determine the coefficients of the PDF and rather simply states the techniques to use or get the results from mat lab. Also it doesn't mention the importance of poles or zeros when considering the z-transform. To get to the point, chapter 7 must be redone to provide better understanding and significance of the z-transform.

good content

I absolutely loved learning from this book. The topics covered are thoroughly explained with vivid examples and practice problems. The MATLAB integration makes learning DSP very exciting and applicable! My DSP course was one of my favorites because of this book. I would highly recommend it!

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