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Signals, Systems and Communication -
Bhagwandas P. Lathi 1991-05-01

Communication Theory and Signal Processing for Transform Coding - Khamies El-Shennawy
2014-06-08

This book is tailored to fulfil the requirements in the area of the signal processing in communication systems. The book contains numerous examples, solved problems and exercises to explain the methodology of Fourier Series, Fourier Analysis, Fourier Transform and properties, Fast Fourier Transform FFT, Discrete Fourier Transform DFT and properties, Discrete Cosine Transform DCT, Discrete Wavelet Transform DWT and Contourlet Transform CT. The book is characterized by three directions, the communication theory and signal processing point of view, the mathematical point of view and utility computer programs. The contents of this book include chapters in communication system and signals, Fourier Series and Power Spectra, Fourier Transform and Energy Spectra, Fourier Transform and Power Spectra, Correlation Function and Spectral Density, Signal Transmission and Systems, Hilbert Transform, Narrow Band-Pass Signals and Systems and Numerical Computation of Transform Coding. This book is intended for undergraduate students in institutes, colleges, universities and academies who want to specialize in the field of communication systems and signal processing. The book will also be very useful to engineers of graduate and post graduate studies as well as researchers in research centers since it contains

a great number of mathematical operations that are considered important in research results.

Signal Processing First - James H. McClellan
2015-06-05

For introductory courses (freshman and sophomore courses) in Digital Signal Processing and Signals and Systems. Text may be used before the student has taken a course in circuits. DSP First and its accompanying digital assets are the result of more than 20 years of work that originated from, and was guided by, the premise that signal processing is the best starting point for the study of electrical and computer engineering. The "DSP First" approach introduces the use of mathematics as the language for thinking about engineering problems, lays the groundwork for subsequent courses, and gives students hands-on experiences with MATLAB. The Second Edition features three new chapters on the Fourier Series, Discrete-Time Fourier Transform, and the The Discrete Fourier Transform as well as updated labs, visual demos, an update to the existing chapters, and hundreds of new homework problems and solutions.

Signal Processing and Linear Systems - B. P. Lathi 2021-02

"This text presents a comprehensive treatment of signal processing and linear systems suitable for undergraduate students in electrical engineering. It is based on Lathi's widely used book, Linear Systems and Signals, with additional applications to communications, controls, and filtering as well as new chapters on analog and digital filters and digital signal processing. This volume's organization is

different from the earlier book. Here, the Laplace transform follows Fourier, rather than the reverse; continuous-time and discrete-time systems are treated sequentially, rather than interwoven. Additionally, the text contains enough material in discrete-time systems to be used not only for a traditional course in signals and systems but also for an introductory course in digital signal processing. In *Signal Processing and Linear Systems* Lathi emphasizes the physical appreciation of concepts rather than the mere mathematical manipulation of symbols. Avoiding the tendency to treat engineering as a branch of applied mathematics, he uses mathematics not so much to prove an axiomatic theory as to enhance physical and intuitive understanding of concepts. Wherever possible, theoretical results are supported by carefully chosen examples and analogies, allowing students to intuitively discover meaning for themselves"--

Electronic Communication Systems - George Kennedy 1984

An Introduction To Analog And Digital Communications - Haykin 2009-07

An introductory treatment of communication theory as applied to the transmission of information-bearing signals with attention given to both analog and digital communications. Chapter 1 reviews basic concepts. Chapters 2 through 4 pertain to the characterization of signals and systems. Chapters 5 through 7 are concerned with transmission of message signals over communication channels. Chapters 8 through 10 deal with noise in analog and digital communications. Each chapter (except chapter 1) begins with introductory remarks and ends with a problem set. Treatment is self-contained with numerous worked-out examples to support the theory. · Fourier Analysis · Filtering and Signal Distortion · Spectral Density and Correlation · Digital Coding of Analog Waveforms · Intersymbol Interference and Its Cures · Modulation Techniques · Probability Theory and Random Processes · Noise in Analog Modulation · Optimum Receivers for Data Communication

Introduction to Digital Communication Systems - Krzysztof Wesolowski 2009-07-31
Combining theoretical knowledge and practical

applications, this advanced-level textbook covers the most important aspects of contemporary digital communication systems. *Introduction to Digital Communication Systems* focuses on the rules of functioning digital communication system blocks, starting with the performance limits set by the information theory. Drawing on information relating to turbo codes and LDPC codes, the text presents the basic methods of error correction and detection, followed by baseband transmission methods, and single- and multi-carrier digital modulations. The basic properties of several physical communication channels used in digital communication systems are explained, showing the transmission and reception methods on channels suffering from intersymbol interference. The text also describes the most recent developments in the transmission techniques specific to wireless communications used both in wireline and wireless systems. The case studies are a unique feature of this book, illustrating elements of the theory developed in each chapter. *Introduction to Digital Communication Systems* provides a concise approach to digital communications, with practical examples and problems to supplement the text. There is also a companion website featuring an instructors' solutions manual and presentation slides to aid understanding. Offers theoretical and practical knowledge in a self-contained textbook on digital communications Explains basic rules of recent achievements in digital communication systems such as MIMO, turbo codes, LDPC codes, OFDMA, SC-FDMA Provides problems at the end of each chapter with an instructors' solutions manual on the companion website Includes case studies and representative communication system examples such as DVB-S, GSM, UMTS, 3GPP-LTE

Electronics - Neil Storey 2006
Electronics play a central role in our everyday lives, being at the heart of much of today's essential technology - from mobile phones to computers, from cars to power stations. As such, all engineers, scientists and technologists need a basic understanding of this area, whilst many will require a far greater knowledge of the subject. The third edition of "Electronics: A Systems Approach" is an outstanding introduction to this fast-moving, important field.

Fully updated, it covers the latest changes and developments in the world of electronics. It continues to use Neil Storey's well-respected systems approach, firstly explaining the overall concepts to build students' confidence and understanding, before looking at the more detailed analysis that follows. This allows the student to contextualise what the system is designed to achieve, before tackling the intricacies of the individual components. The book also offers an integrated treatment of analogue and digital electronics highlighting and exploring the common ground between the two fields. Throughout the book learning is reinforced by chapter objectives, end of chapter summaries, worked examples and exercises. This third edition is a significant update to the previous material, and includes: New chapters on Operational Amplifiers, Power Electronics, Implementing Digital Systems, and Positive Feedback, Oscillators and Stability . A new appendix providing a useful source of Standard Op-amp Circuits New material on CMOS, BiFET and BiMOS Op-amps New treatment of Single-Chip Microcomputers A greatly increased number of worked examples within the text Additional Self-Assessment questions at the end of each chapter Dr. Neil Storey is a member of the School of Engineering at the University of Warwick, where he has many years of experience in teaching electronics to a wide-range of undergraduate, postgraduate and professional engineers. He is also the author of "Safety-Critical Computer Systems" and "Electrical and Electronic Systems" both published by Pearson Education.

Signal Processing and Linear Systems - Bhagwandas Pannalal Lathi 1998

This text presents a comprehensive treatment of signal processing and linear systems. It features applications to communications, controls and filtering as well as new chapters on analog and digital filters and digital signal processing. The author emphasizes the physical appreciation of concepts rather than the mathematical manipulation of symbols. Avoiding the tendency to treat engineering as a branch of applied mathematics, he uses mathematics to enhance physical and intuitive understanding of concepts, instead of employing it only to prove axiomatic theory.

Digital and Analog Communication Systems - Leon W. Couch 1987

For second and third year introductory communication systems courses for undergraduates, or an introductory graduate course. This revision of Couch's authoritative text provides the latest treatment of digital communication systems. The author balances coverage of both digital and analog communication systems, with an emphasis on design. Students will gain a working knowledge of both classical mathematical and personal computer methods to analyze, design, and simulate modern communication systems. MATLAB is integrated throughout.

COMMUNICATION SYSTEMS, 4TH ED - Haykin 2006-08

About The Book: This best-selling, easy to read, communication systems book has been extensively revised to include an exhaustive treatment of digital communications. Throughout, it emphasizes the statistical underpinnings of communication theory in a complete and detailed manner.

Modern Digital and Analog Communication Systems - B. P. Lathi 2018

This text is suitable for students with or without prior knowledge of probability theory. Only after laying a solid foundation in how communication systems work do the authors delve into analyses that require probability theory and random processes. Revised and updated throughout, the fifth edition features over 200 fully worked-through examples incorporating current technology, MATLAB codes throughout, and a full review of key signals and systems concepts.

Principles of Modern Communication Systems - Samuel O. Agbo 2017-02-06

An accessible, yet mathematically rigorous, one-semester textbook, engaging students through use of problems, examples, and applications.

DIGITAL AND ANALOG COMMUNICATION SYSTEMS - Shanmugam 2006-08

About The Book: The book provides a detailed, unified treatment of theoretical and practical aspects of digital and analog communication systems, with emphasis on digital communication systems. It integrates theory-keeping theoretical details to a minimum-with over 60 practical, worked examples illustrating real-life methods. The text emphasizes deriving

design equations that relate performance of functional blocks to design parameters. It illustrates how to trade off between power, band-width and equipment complexity while maintaining an acceptable quality of performance. Material is modularized so that appropriate portions can be selected to teach several different courses. The book also includes over 300 problems and an annotated bibliography in each chapter.

Communication Systems - Simon Haykin

2000-08-01

Introduction to Digital Communications - Ali Grami 2015-02-25

Introduction to Digital Communications explores the basic principles in the analysis and design of digital communication systems, including design objectives, constraints and trade-offs. After portraying the big picture and laying the background material, this book lucidly progresses to a comprehensive and detailed discussion of all critical elements and key functions in digital communications. The first undergraduate-level textbook exclusively on digital communications, with a complete coverage of source and channel coding, modulation, and synchronization. Discusses major aspects of communication networks and multiuser communications Provides insightful descriptions and intuitive explanations of all complex concepts Focuses on practical applications and illustrative examples. A companion Web site includes solutions to end-of-chapter problems and computer exercises, lecture slides, and figures and tables from the text

Solutions Manual for Modern Digital and Analog Communication Systems - B. P. Lathi 2000

This third edition has been revised to include expanded coverage of digital communications. New topics include spread-spectrum systems, cellular communication systems, global positioning systems (GPS), and a chapter on emerging digital technologies such as SONET, ISDN and video compression.

Modern Digital and Analog Communication Systems - B. P. Lathi 1995

With exceptionally clear writing, Lathi takes students step by step through a history of

communications systems from elementary signal analysis to advanced concepts in communications theory. The first four chapters of the text present basic principles, subsequent chapters offer ample material for flexibility in course content and level. All Topics are covered in detail, including a thorough treatment of frequency modulation and phase modulation. Numerous worked examples in each chapter and over 300 end-of-chapter problems and numerous illustrations and figures support the content.

Digital Signal Processing Using MATLAB - Vinay K. Ingle 2007

This supplement to any standard DSP text is one of the first books to successfully integrate the use of MATLAB® in the study of DSP concepts. In this book, MATLAB® is used as a computing tool to explore traditional DSP topics, and solve problems to gain insight. This greatly expands the range and complexity of problems that students can effectively study in the course. Since DSP applications are primarily algorithms implemented on a DSP processor or software, a fair amount of programming is required. Using interactive software such as MATLAB® makes it possible to place more emphasis on learning new and difficult concepts than on programming algorithms. Interesting practical examples are discussed and useful problems are explored. This updated second edition includes new homework problems and revises the scripts in the book, available functions, and m-files to MATLAB® V7.

Digital Signal Processing - Sanjit Kumar Mitra 2006-01

Digital Signal Processing: A Computer-Based Approach is intended for a two-semester course on digital signal processing for seniors or first-year graduate students. Based on user feedback, a number of new topics have been added to the third edition, while some excess topics from the second edition have been removed. The author has taken great care to organize the chapters more logically by reordering the sections within chapters. More worked-out examples have also been included. The book contains more than 500 problems and 150 MATLAB exercises. New topics in the third edition include: short-time characterization of discrete-time signals, expanded coverage of discrete-time Fourier transform and discrete Fourier transform, prime

factor algorithm for DFT computation, sliding DFT, zoom FFT, chirp Fourier transform, expanded coverage of z-transform, group delay equalization of IIR digital filters, design of computationally efficient FIR digital filters, semi-symbolic analysis of digital filter structures, spline interpolation, spectral factorization, discrete wavelet transform.

Computer Networks - Andrew S. Tanenbaum
2003

Details descriptions of the principles associated with each layer and presents many examples drawn the Internet and wireless networks.

Communication Systems - Sanjay Sharma
2012

Blind Equalization and Identification - Zhi Ding
2018-10-08

This text seeks to clarify various contradictory claims regarding capabilities and limitations of blind equalization. It highlights basic operating conditions and potential for malfunction. The authors also address concepts and principles of blind algorithms for single input multiple output (SIMO) systems and multi-user extensions of SIMO equalization and identification.

Digital Signal Processing - Andreas Antoniou
2005-10-10

An up-to-the-minute textbook for junior/senior level signal processing courses and senior/graduate level digital filter design courses, this text is supported by a DSP software package known as D-Filter which would enable students to interactively learn the fundamentals of DSP and digital-filter design. The book includes a free license to D-Filter which will enable the owner of the book to download and install the most recent version of the software as well as future updates.

Solutions Manual to Accompany Digital Communications - Simon S. Haykin 1988

Digital Communications - John G. Proakis
2008-01

Digital Communications is a classic book in the area that is designed to be used as a senior or graduate level text. The text is flexible and can easily be used in a one semester course or there is enough depth to cover two semesters. Its comprehensive nature makes it a great book for students to keep for reference in their

professional careers. This all-inclusive guide delivers an outstanding introduction to the analysis and design of digital communication systems. Includes expert coverage of new topics: Turbo-codes, Turboequalization, Antenna Arrays, Digital Cellular Systems, and Iterative Detection. Convenient, sequential organization begins with a look at the history and classification of channel models and builds from there.

Microelectronic Circuit Design - Richard C. Jaeger 2007-02

Microelectronic Circuit Design is known for being a technically excellent text. The new edition has been revised to make the material more motivating and accessible to students while retaining a student-friendly approach. Jaeger has added more pedagogy and an emphasis on design through the use of design examples and design notes. Some pedagogical elements include chapter opening vignettes, chapter objectives, "Electronics in Action" boxes, a problem solving methodology, and "design note" boxes. The number of examples, including new design examples, has been increased, giving students more opportunity to see problems worked out. Additionally, some of the less fundamental mathematical material has been moved to the ARIS website. In addition this edition comes with a Homework Management System called ARIS, which includes 450 static problems.

[Probability, Random Variables, and Random Processes](#) - John J. Shynk 2012-10-15

Probability, Random Variables, and Random Processes is a comprehensive textbook on probability theory for engineers that provides a more rigorous mathematical framework than is usually encountered in undergraduate courses. It is intended for first-year graduate students who have some familiarity with probability and random variables, though not necessarily of random processes and systems that operate on random signals. It is also appropriate for advanced undergraduate students who have a strong mathematical background. The book has the following features: Several appendices include related material on integration, important inequalities and identities, frequency-domain transforms, and linear algebra. These topics have been included so that the book is relatively self-contained. One appendix contains

an extensive summary of 33 random variables and their properties such as moments, characteristic functions, and entropy. Unlike most books on probability, numerous figures have been included to clarify and expand upon important points. Over 600 illustrations and MATLAB plots have been designed to reinforce the material and illustrate the various characterizations and properties of random quantities. Sufficient statistics are covered in detail, as is their connection to parameter estimation techniques. These include classical Bayesian estimation and several optimality criteria: mean-square error, mean-absolute error, maximum likelihood, method of moments, and least squares. The last four chapters provide an introduction to several topics usually studied in subsequent engineering courses: communication systems and information theory; optimal filtering (Wiener and Kalman); adaptive filtering (FIR and IIR); and antenna beamforming, channel equalization, and direction finding. This material is available electronically at the companion website.

Probability, Random Variables, and Random Processes is the only textbook on probability for engineers that includes relevant background material, provides extensive summaries of key results, and extends various statistical techniques to a range of applications in signal processing.

Signals & Systems - Alan V. Oppenheim 1997
This authoritative book, highly regarded for its intellectual quality and contributions provides a solid foundation and life-long reference for anyone studying the most important methods of modern signal and system analysis. The major changes of the revision are reorganization of chapter material and the addition of a much wider range of difficulties.

Communication Systems Engineering - John G. Proakis 2002

Thorough coverage of basic digital communication system principles ensures that readers are exposed to all basic relevant topics in digital communication system design. The use of CD player and JPEG image coding standard as examples of systems that employ modern communication principles allows readers to relate the theory to practical systems. Over 180 worked-out examples throughout the book aids

readers in understanding basic concepts. Over 480 problems involving applications to practical systems such as satellite communications systems, ionospheric channels, and mobile radio channels gives readers ample opportunity to practice the concepts they have just learned. With an emphasis on digital communications, **Communication Systems Engineering, Second Edition** introduces the basic principles underlying the analysis and design of communication systems. In addition, this book gives a solid introduction to analog communications and a review of important mathematical foundation topics. New material has been added on wireless communication systems—GSM and CDMA/IS-94; turbo codes and iterative decoding; multicarrier (OFDM) systems; multiple antenna systems. Includes thorough coverage of basic digital communication system principles—including source coding, channel coding, baseband and carrier modulation, channel distortion, channel equalization, synchronization, and wireless communications. Includes basic coverage of analog modulation such as amplitude modulation, phase modulation, and frequency modulation as well as demodulation methods. For use as a reference for electrical engineers for all basic relevant topics in digital communication system design.

Continuous and Discrete Time Signals and Systems International Student Edition - Mrinal Kr Mandal 2007-12-12

This textbook presents an introduction to fundamental concepts of continuous-time and discrete-time signals and systems, in a self-contained manner.

Analog Integrated Circuits for Communication - Donald O. Pederson 2007-10-31

Analog Integrated Circuits for Communication: Principles, Simulation and Design, Second Edition covers the analysis and design of nonlinear analog integrated circuits that form the basis of present-day communication systems. Both bipolar and MOS transistor circuits are analyzed and several numerical examples are used to illustrate the analysis and design techniques developed in this book. Especially unique to this work is the tight coupling between the first-order circuit analysis and circuit simulation results. Extensive use has been made

of the public domain circuit simulator Spice, to verify the results of first-order analyses, and for detailed simulations with complex device models. Highlights of the new edition include: A new introductory chapter that provides a brief review of communication systems, transistor models, and distortion generation and simulation. Addition of new material on MOSFET mixers, compression and intercept points, matching networks. Revisions of text and explanations where necessary to reflect the new organization of the book Spice input files for all the circuit examples that are available to the reader from a website. Problem sets at the end of each chapter to reinforce and apply the subject matter. An instructors solutions manual is available on the book's webpage at springer.com. Analog Integrated Circuits for Communication: Principles, Simulation and Design, Second Edition is for readers who have completed an introductory course in analog circuits and are familiar with basic analysis techniques as well as with the operating principles of semiconductor devices. This book also serves as a useful reference for practicing engineers.

Principles Of Communication Systems - HERBERT. TAUB 2007

Probabilistic Methods of Signal and System Analysis - George R. Cooper 1999
Probabilistic Methods of Signal and System Analysis, 3/e stresses the engineering applications of probability theory, presenting the material at a level and in a manner ideally suited to engineering students at the junior or senior level. It is also useful as a review for graduate students and practicing engineers. Thoroughly revised and updated, this third edition incorporates increased use of the computer in both text examples and selected problems. It utilizes MATLAB as a computational tool and includes new sections relating to Bernoulli trials,

correlation of data sets, smoothing of data, computer computation of correlation functions and spectral densities, and computer simulation of systems. All computer examples can be run using the Student Version of MATLAB. Almost all of the examples and many of the problems have been modified or changed entirely, and a number of new problems have been added. A separate appendix discusses and illustrates the application of computers to signal and system analysis.

Modern Wireless Communications - Simon S. Haykin 2011

Communication Systems 2ed - Haykin

Principles of Communications - Rodger E. Ziemer 1976

Essentials of Digital Signal Processing - B. P. Lathi 2014-04-28

Offers a fresh approach to digital signal processing (DSP), combining heuristic reasoning and physical appreciation with mathematical methods.

Linear Systems and Signals - Bhagwandas Pannalal Lathi 2017-11

Linear Systems and Signals, Third Edition, has been refined and streamlined to deliver unparalleled coverage and clarity. It emphasizes a physical appreciation of concepts through heuristic reasoning and the use of metaphors, analogies, and creative explanations. The text uses mathematics not only to prove axiomatic theory but also to enhance physical and intuitive understanding. Hundreds of fully worked examples provide a hands-on, practical grounding of concepts and theory. Its thorough content, practical approach, and structural adaptability make Linear Systems and Signals, Third Edition, the ideal text for undergraduates.

Communication Systems - Simon S. Haykin 1983