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Microwave Engineering-David M. Pozar 2011-11-22 Pozar's new edition of Microwave Engineering includes more material on active circuits, noise, nonlinear effects, and wireless systems. Chapters on noise and nonlinear distortion, and active devices have been added along with the coverage of noise and more material on intermodulation distortion and related nonlinear effects. On active devices, there's more updated material on bipolar junction and field effect transistors. New and updated material on wireless communications systems, including link budget, link margin, digital modulation methods, and bit error rates is also part of the new edition. Other new material includes a section on transients on transmission lines, the theory of power waves, a discussion of higher order modes and frequency effects for microstrip line, and a discussion of how to determine unloaded.

Microwave Engineering, 3Rd Ed-David M.Pozar 2009-09 This classic text provides a thorough coverage of RF and microwave engineering concepts based on fundamental principles of electrical engineering and applied to microwave circuits and devices of practical importance. Coverage includes microwave network analysis, impedance matching, directional couplers and hybrids, microwave filters, ferrite devices, noise, nonlinear effects, and the design of microwave oscillators, amplifiers, and mixers. A large number of examples and end-of-chapter problems test the reader's understanding of the material.· Electromagnetic Theory· Transmission Line Theory· Transmission Lines and Waveguides· Microwave Network Analysis· Impedance Matching and Tuning· Microwave Resonators· Power Dividers and Directional Couplers· Microwave Filters· Theory and Design of Ferrimagnetic Components· Noise and Active RF Components· Microwave Amplifier Design· Oscillators and Mixers· Introduction to Microwave Systems

Microwave Engineering, Fourth Edition Wiley E-Text Reg Card-Pozar 2013-02-11

Microwave and RF Design of Wireless Systems-David M. Pozar 2000-11-29 David Pozar, author of Microwave Engineering, Second Edition, has written a new text that introduces students to the field of wireless communications. This text offers a quantitative and, design-oriented presentation of the analog RF aspects of modern wireless telecommunications and data transmission systems from the antenna to the baseband level. Other topics include noise, intermodulation, dynamic range, system aspects of antennas and filter design. This unique text takes an integrated approach to topics usually offered in a variety of separate courses on topics such as antennas and proagation, microwave systems and circuits, and communication systems. This approach allows for a complete presentation of wireless telecommunications systems designs. The author's goal with this text is for the student to be able to analyze a complete radio system from the transmitter through the receiver front-end, and quantitatively evaluate factors. Suitable for a one-semester course, at the senior or first year graduate level. Note certain sections have been denoted as advanced topics, suitable for graduate level courses.

Coplanar Waveguide Circuits, Components, and Systems-Rainee N. Simons 2004-04-07 Up-to-date coverage of the analysis and applications of coplanarwaveguides to microwave circuits and antennas The unique feature of coplanar waveguides, as opposed to moreconventional waveguides, is their uniplanar construction, in whichall of the conductors are aligned on the same side of thesubstrate. This feature simplifies manufacturing and allows fasterand less expensive characterization using on-wafer techniques. Coplanar Waveguide Circuits, Components, and Systems isan engineer's complete resource, collecting all of the availabledata on the subject. Rainee Simons thoroughly discusses propagationparameters for conventional coplanar waveguides and includesvaluable details such as the derivation of the fundamentalequations, physical explanations, and numerical examples. Coverage also includes: Discontinuities and circuit elements Transitions to other transmission media Directional couplers, hybrids, and magic T Microelectromechanical systems based switches and phaseshifters Tunable devices using ferroelectric materials Photonic bandgap structures Printed circuit antennas

Advanced Engineering Electromagnetics-Constantine A. Balanis 2012-01-24 Balanis' second edition of Advanced Engineering Electromagnetics – a global best-seller for over 20 years – covers the advanced knowledge engineers involved in electromagnetic need to know, particularly as the topic relates to the fast-moving, continually evolving, and rapidly expanding field of wireless communications. The immense interest in wireless communications and the expected increase in wireless communications systems projects (antenna, microwave and wireless communication) points to an increase in the number of engineers needed to specialize in this field. In addition, the Instructor Book Companion Site contains a rich collection of multimedia resources for use with this text. Resources include: Ready-made lecture notes in Power Point format for all the chapters. Forty-nine MATLAB® programs to compute, plot and animate some of the wave phenomena Nearly 600 end-of-chapter problems, that's an average of 40 problems per chapter (200 new problems; 50% more than in the first edition) A thoroughly updated Solutions Manual 2500 slides for Instructors are included.

RF and Microwave Wireless Systems-Kai Chang 2004-04-05 A comprehensive introduction to the hardware, parameters, andarchitectures of RF/microwave wireless systems As the basis for some of the hottest technologies of the newmillennium, radio frequency (RF) and microwave wireless systemsrapidly propel us toward a future in which the transmission ofvoice, video, and data communications will be possible anywhere inthe world through the use of simple, handheld devices. This book provides scientists and engineers with clear, thorough,up-to-date explanations of all aspects of RF and microwave wirelessystems, including general hardware components, system parameters,and architectures. Renowned authority Kai Chang covers bothcommunication and radar/sensor systems and extends the discussionto other intriguing topics, from global positioning systems (GPS)to smart highways and smart automobiles. With an emphasis on basicoperating principles, Dr. Chang reviews waves and transmissionlines, examines modulation and demodulation and multiple-accesstechniques, and helps bridge the gap between RF/microwaveengineering and communication system design. Ample practiceexamples of components and system configurations and nearly 300illustrations and photographs complete this timely andindispensable resource. An Instructor's Manual presenting detailed solutions to all theproblems in the book is available from the Wiley editorialdepartment

Handbook of Microwave Component Measurements-Joel P. Dunsmore 2012-08-15 This book provides state-of-the-art coverage for makingmeasurements on RF and Microwave Components, both active andpassive. A perfect reference for R&D and Test Engineers, withtopics ranging from the best practices for basic measurements, toan in-depth analysis of errors, correction methods, and uncertaintyanalysis, this book provides everything you need to understandmicrowave measurements. With primary focus on active and passivemeasurements using a Vector Network Analyzer, these techniques andanalysis are equally applicable to measurements made with SpectrumAnalyzers or Noise Figure Analyzers. The early chapters provide a theoretical basis for measurementscomplete with extensive definitions and descriptions of componentcharacteristics and measurement parameters. The latterchapters give detailed examples for cases of cable, connector andfilter measurements; low noise, high-gain and high power amplifiermeasurements, a wide range of mixer and frequency convertermeasurements, and a full examination of fixturing, de-embedding,balanced measurements and calibration techniques. The chapter ontime-domain theory and measurements is the most complete treatmentthe subject yet presented, with details of the underlyingmathematics and new material on time domain gating. As the inventorof many of the methods presented, and with 30 years as adevelopment engineer on the most modern measurement platforms, theauthor presents unique insights into the understanding of modernmeasurement theory. Key Features: Explains the interactions between the device-under-test (DUT)and the measuring equipment by demonstrating the best practices forascertaining the true nature of the DUT, and optimizing the time toset up and measure Offers a detailed explanation of algorithms and mathematicsbehind measurements and error correction Provides numerous illustrations (e.g. block-diagrams forcircuits connections and measurement setups) and practical exampleson real-world devices, which can provide immediate benefit to thereader Written by the principle developer and designer of many of themeasurement methods described This book will be an invaluable guide for RF and microwaveR&D and test engineers, satellite test engineers, radarengineers, power amplifier designers, LNA designers, and mixerdesigners. University researchers and graduate students inmicrowave design and test will also find this book of interest.

Nonlinear Circuit Simulation and Modeling-José Carlos Pedro 2018-06-30 A practical, tutorial guide to the nonlinear methods and techniques needed to design real-world microwave circuits.

Social and Political Philosophy-John Somerville 2012-09-12 An anthology of basic statements by the most influential social and political philosophers of Western civilization. Includes Plato, Aristotle, Machiavelli, Hobbes, Locke, Rousseau, Jefferson, Thoreau, Mill, Marx and Engels, Lenin, Mussolini, Hitler, Dewey, and Gandhi.

Microwave Transistor Amplifiers-Guillermo Gonzalez 1997. · DC CIRCUITS. 1. Components, Quantities, and Units. 2. Voltage, Current, and Resistance in Electric Circuits. 3. Ohm's Law, Energy, and Power. 4. Series Circuits. 5. Parallel Circuits. 6. Series-Parallel Circuits. 7. Magnetism and Electromagnetism. II. AC CIRCUITS. 8. Introduction to Alternating Current and Voltage. 9. Capacitors. 10. RC Circuits. 11. Inductors. 12. RL Circuits. 13. RLC Circuits and Resonance. 14. Transformers. 15. Pulse Response of Reactive Circuits. III. DEVICES. 16. Introduction to Semiconductors 17. Diodes and Applications. 18. Transistors and Thyristors. 19. Amplifiers and Oscillators. 20. Operational Amplifiers (Op-Amps). 21. Basic Applications of Op-Amps. APPENDICES. A. Table of Standard Resistor Values. B. Batteries. C. Capacitor Color Coding and Labeling. D. The Current Source, Nortons Theorems and Millman's Theorem. E. Devices Data Sheets. Answers to Odd-Numbered Problems. Glossary. Index.

Microwave Engineering-Annapura Das 2000

Principles of Electromagnetic Waves and Materials-Dikshitulu K. Kalluri 2016-04-19 Principles of Electromagnetic Waves and Materials is a condensed version of the author's previously published textbook, Electromagnetic Waves, Materials, and Computation with MATLAB. This book focuses on lower-level courses, primarily senior undergraduate and graduate students in electromagnetic waves and materials courses. It takes an integrative RF Circuit Design-Christopher Bowick 2014-06-28 Essential reading for experts in the field of RF circuit design and engineers needing a good reference. This book provides complete design procedures for multiple-pole Butterworth, Chebyshev, and Bessel filters. It also covers capacitors, inductors, and other components with their behavior at RF frequencies discussed in detail

Radiowave Propagation-Curt Levis 2010-06-01 An accessible student-oriented approach to radiowave propagation Propagation-the process whereby a signal is conveyed between transmitter and receiver-has a profound influence on communication systems design. Radiowave Propagation provides an overview of the physical mechanisms that govern electromagnetic wave propagation in the Earth's troposphere and ionosphere. Developed in conjunction with a graduate-level wave propagation course at The Ohio State University, this text offers a balance of physical and empirical models to provide basic physical insight as well as practical methods for system design. Beginning with discussions of propagation media properties, plane waves, and antenna and system concepts, successive chapters consider the most important wave propagation mechanisms for frequencies ranging from LF up to the millimeter wave range, including: Direct line-of-sight propagation through the atmosphere Rain attenuation The basic theory of reflection and refraction at material interfaces and in the Earth's atmosphere Reflection, refraction, and diffraction analysis in microwave link design for a specified terrain profile Empirical path loss models for point-to-point ground links Statistical fading models Standard techniques for prediction of ground wave propagation Ionospheric propagation, with emphasis on the skywave mechanism at MF and HF and on ionospheric perturbations for Earth-space links at VHF and higher frequencies A survey of other propagation mechanisms, including tropospheric scatter, meteor scatter, and propagation effects on GPS systems Radiowave Propagation incorporates fundamental materials to help senior undergraduate and graduate engineering students review and strengthen electromagnetic physics skills as well as the most current empirical methods recommended by the International Telecommunication Union. This book can also serve as a valuable teaching and reference text for engineers working with wireless communication, radar, or remote sensing systems.

Ultra Wideband-Ranjit Gharpurey 2008-03-06 This book is a compilation of chapters on various aspects of Ultra Wideband. The book includes chapters on Ultra Wideband transceiver implementations, pulse-based systems and one on the implementation for the WiMedia/MBOFDM approach. Another chapter discusses the implementation of the physical layer baseband, including the ADC and post-ADC processing required in the UWB system. Future advances such as multiantenna UWB solutions are also discussed.

Computational Electromagnetics with MATLAB, Fourth Edition-Matthew N.O. Sadiku 2018-07-20 This fourth edition of the text reflects the continuing increase in awareness and use of computational electromagnetics and incorporates advances and refinements made in recent years. Most notable among these are the improvements made to the standard algorithm for the finite-difference time-domain (FDTD) method and treatment of absorbing boundary conditions in FDTD, finite element, and transmission-line-matrix methods. It teaches the readers how to pose, numerically analyze, and solve EM problems, to give them the ability to expand their problem-solving skills using a variety of methods, and to prepare them for research in electromagnetism. Includes new homework problems in each chapter. Each chapter is updated with the current trends in CEM. Adds a new appendix on CEM codes, which covers commercial and free codes. Provides updated MATLAB code.

Microwave and RF Design-Michael Steer 2013 Considerably expanded and updated, the second edition of this bestselling reference and textbook is updated with current wireless systems with sections on 4G and the technologies behind 5G cellular communications. This book includes 10 real world case studies of leading edge designs, taking readers through the design process and the many pragmatic designs that must be made during the process. It includes extensive end-of-chapter exercises ranging from less challenging testing to involved, open-ended design exercises. Considerably expanded and updated second edition of this best-selling reference, graduate and/or advanced undergraduate textbook * 'System module' updated with current wireless systems with sections on 4G and the technologies behind 5G cellular communications. * Includes 10 real world case studies of leading edge designs, taking readers through the design process and the many pragmatic designs that must be made during the process. * Includes extensive end-of-chapter exercises ranging from less challenging testing to involved, open-ended design exercises

Antenna Theory and Design-Warren L. Stutzman 2012-05-22 Stutzman's 3rd edition of Antenna Theory and Design provides a more pedagogical approach with a greater emphasis on computational methods. New features include additional modern material to make the text more exciting and relevant to practicing engineers; new chapters on systems, low-profile elements and base station antennas; organizational changes to improve understanding; more details to selected important topics such as microstrip antennas and arrays; and expanded measurements topic.

Phased Array Antenna Handbook, Third Edition-Robert J. Mailloux 2017-11-30 This completely revised third edition of an Artech House classic, Phased Array Antenna Handbook, Second Edition, offers an up-to-date and comprehensive treatment of array antennas and systems. This edition provides a wealth of new material, including expanded coverage of phased array and multiple beam antennas. New modern machine learning techniques used for analysis are included. Additional material on wideband antennas and wideband coverage in array antennas are incorporated in this book, including new methods, devices, and technologies that have developed since the second edition. A detailed treatment of antenna system noise, sections on antenna pattern synthesis, developments in subarray technology, and in-depth coverage of array architecture and components are additional new features of this book. The book explores design elements that demonstrate how to size an array system with speed and confidence. Moreover, this resource provides expanded coverage of systems aspects of arrays for radar and communications. Supported with numerous equations and illustrations, this practical book helps evaluate basic antenna parameters such as gain, sidelobe levels, and noise. Readers learn how to compute antenna system noise, design subarray geometries for given bandwidth, scan and sidelobe constraints, and choose array illumination tapers for given sidelobe levels.

Introduction to Microwave Imaging-Natalia K. Nikolova 2017-07-13 With this self-contained, introductory text, readers will easily understand the fundamentals of microwave and radar image generation. Written with the complete novice in mind, and including an easy-to-follow introduction to electromagnetic scattering theory, it covers key topics such as forward models of scattering for interpreting S-parameter and time-dependent voltage data, S-parameters and their analytical sensitivity formulae, basic methods for real-time image reconstruction using frequency-sweep and pulsed-radar signals, and metrics for evaluating system performance. Numerous application examples and practical tutorial exercises provided throughout allow quick understanding of key concepts, and sample MATLAB codes implementing key reconstruction algorithms accompany the book online. This one-stop resource is ideal for graduate students taking introductory courses in microwave imaging, as well as researchers and industry professionals wanting to learn the fundamentals of the field.

A Student's Guide to Maxwell's Equations-Daniel Fleisch 2008-01-10 Gauss's law for electric fields, Gauss's law for magnetic fields, Faraday's law, and the Ampere-Maxwell law are four of the most influential equations in science. In this guide for students, each equation is the subject of an entire chapter, with detailed, plain-language explanations of the physical meaning of each symbol in the equation, for both the integral and differential forms. The final chapter shows how Maxwell's equations may be combined to produce the wave equation, the basis for the electromagnetic theory of light. This book is a wonderful resource for undergraduate and graduate courses in electromagnetism and electromagnetics. A website hosted by the author at www.cambridge.org/9780521701471 contains interactive solutions to every problem in the text as well as audio podcasts to walk students through each chapter.

Antennas and Wave Propagation-A. R. Harish 2007 Aimed at a single-semester course on antennas at the undergraduate level, Antennas and Wave Propagation provides a lucid explanation of the fundamentals of antennas and propagation. This student-friendly text also includes simple design procedures along with a large number of examples and exercises.

Waveguide Handbook-Nathan Marcuvitz 1951 Presents the equivalent-circuit parameters for a large number of microwave structures.

Foundations for Microstrip Circuit Design-Terry C. Edwards 2016-02-01 Building on the success of the previous three editions, Foundations for Microstrip Circuit Design offers extensive new, updated and revised material based upon the latest research. Strongly design-oriented, this fourth edition provides the reader with a fundamental understanding of this fast expanding field making it a definitive source for professional engineers and researchers and an indispensable reference for senior students in electrical engineering. Topics new to this edition: microwave substrates, multilayer transmission line structures, modern EM tools and techniques, microstrip and planar transmission line design, transmission line theory, substrates for planar transmission lines, Vias, wirebonds, 3D integrated interposer structures, computer-aided design, microstrip and power-dependent effects, circuit models, microwave network analysis, microstrip passive elements, and slotline design fundamentals.

RF Circuit Design-Reinhold Ludwig 2000-01 For upper-level Electrical Engineering introductory courses in RF Circuit Design and analog integratedcircuits.This practical and comprehensive book introduces RF circuit design fundamentals with an emphasis on design methodologies. * Provides MATLAB routines to carry out simple transmission line computations and allow the graphical display of the resulting impedance behaviors as part of the Smith Chart. * Allows students to implement these software tools on their own PC. All m-files will be included on a bound in CD-ROM. * Presents RF Amplifier Designs, including small and large signal designs, narrow versus broad band, low noise, and many others. * Provides students with useful broad-based knowledge of common amplifier designs used in the industry. * Discusses Matching Networks, such as T and P matching networks and single and double stub matching. It also includes Discrete and Microstrip Line matching techniques with computer simulations. * Presents Scattering parameters such as realistic listings of S-parameters for transistors and transmission line. * Highlights practical use of S-parameters in circuit design and performance evaluation. resistor, capacitor, and inductor networks. It also includes simulations in MATLAB to provide graphical display of circuit behavior and performance analysis. * Introduces the Smith Chart as a design tool to monitor electric behavior of circuits. * Introduces the generic forms of Oscillators and Mixers, including negative resistance condition, fixed-frequency, and YIG-tuned designs. * Explains the most common oscillator designs used in many RF systems. * Provides an overview of common filter types, including low, high, bandpass, Butterworth, and Chebyshev filters. * Provides design tools to enable students to develop a host of practically realizable filters. * Discusses the high-frequency behavior of common circuit components, including the behavior of resistors, capacitors, and inductors. * Helps students understand the difference of low versus high frequency responses. * Introduces the theory of distributed parameters through a discussion on Transmission Lines. This includes line parameters, sources and load terminations, and voltage and current waves. circuits. * Analyzes active/passive RF circuits through various network description models, especially the two-port network. This discussion also covers impedance, admittance, ABCD, h-parameter networks, and interrelations. * Includes a number of important pedagogical features-Intersperses examples throughout each chapter, and includes self-written MATLAB routines and circuit simulations by a commercial RF software package. * Assists students by clarifying and explaining the theoretical developments.

Antenna Theory-Constantine A. Balanis 1996-06-12 The Latest Resource for the Study of Antenna Theory! In a discipline that has experienced vast technological changes, this text offers the most recent look at all the necessary topics. Highlights include: * New coverage of microstrip antennas provides information essential to a wide variety of practical designs of rectangular and circular patches, including computer programs. * Applications of Fourier transform (spectral) method to antenna radiation. * Updated material on moment methods, radar cross section, mutual impedances, aperture and horn antennas, compact range designs, and antenna measurements. A New Emphasis on Design! Balanis features a tremendous increase in design procedures and equations. This presents a solid solution to the challenge of meeting real-life situations faced by engineers. Computer programs contained in the book-and accompanying software-have been developed to help engineers analyze, design, and visualize the radiation characteristics of antennas.

Power Electronics-Muhammad H. Rashid 2009

CMOS VLSI Design-Westee 2006

Secrets of RF Circuit Design-Joseph J. Carr 2001-01-01 BUILD THE CIRCUITS THAT MAKE WIRELESS WORK If you like hands-on electronics, you'll love Secrets of RF Circuit Design, Third Edition, by Popular Electronics writer Joe Carr. This update of the favorite RF circuit guide of thousands of electronics enthusiasts takes you inside wireless technology with step-by-step, illustrated directions for dozens of usable projects. This super guide demonstrates RF theory as it shows you how to overcome the technical and materials challenges facing those who build real-world electronics. You learn how to design and build receiver circuits, RF bridges, amplifiers, receiver preselectors, simple spectrum analyzers, and time domain reflectometers. You get detailed insights into simple RF instruments, as well as UHF and microwave components...complete troubleshooting guidance...and handy parts lists and components sources. This new edition packs the latest information on directional and hybrid couplers, and seven new chapters on demodulators, circuit vectors, measuring L-C circuits, and filtering circuits against EMI. "...a great book on wireless technology for persons starting out in RF electronics, as well as for RF technicians and ham radio operators." -Cotter W. Sayre, author of The Complete RF Technician's Handbook (Amazon.com review)

Fundamentals of Microwave and RF Design-Michael Steer 2019-09 Fundamentals of Microwave and RF Design enables mastery of the essential concepts required to cross the barriers to a successful career in microwave and RF design. Extensive treatment of scattering parameters, that naturally describe power flow, and of Smith-chart-based design procedures prepare the student for success. The emphasis is on design at the module level and on covering the whole range of microwave functions available. The orientation is towards using microstrip transmission line technologies and on gaining essential mathematical, graphical and design skills for module design proficiency. This book is derived from a multi volume comprehensive book series, Microwave and RF Design, Volumes 1-5, with the emphasis in this book being on presenting the fundamental materials required to gain entry to RF and microwave design. This book closely parallels the companion series that can be consulted for in-depth analysis with referencing of the book series being familiar and welcoming. Key Features * A companion volume to a comprehensive series on microwave and RF design * Open access ebook editions are hosted by NC State University Libraries at <https://repository.lib.ncsu.edu/handle/1840.20/36776> * 59 worked examples * An average of 24 exercises per chapter * Answers to selected exercises * Emphasis on module-level design using microstrip technologies * Extensive treatment of design using Smith charts * A parallel companion book series provides a detailed reference resource

Practical Electrical Engineering-Sergey N. Makarov 2016-06-27 This textbook provides comprehensive, in-depth coverage of the fundamental concepts of electrical engineering. It is written from an engineering perspective, with special emphasis on circuit functionality and applications. Reliance on higher-level mathematics and physics, or theoretical proofs has been intentionally limited in order to prioritize the practical aspects of electrical engineering. This text is therefore suitable for a number of introductory circuit courses for other majors such as mechanical, biomedical, aerospace, civil, architecture, petroleum, and industrial engineering. The authors' primary goal is to teach the aspiring engineering student all fundamental tools needed to understand, analyze and design a wide range of practical circuits and systems. Their secondary goal is to provide a comprehensive reference, for both major and non-major students as well as practicing engineers.

Electronic Filter Design Handbook-Arthur Bernard Williams 1995 Still the number one resource for designers in the field, the Third Edition of this classic Handbook is extensively revised and updated to reflect the enormous recent advances in electronic filter design... while maintaining the overall emphasis on practi

Antenna Engineering Handbook-John Volakis 2018-11-05 The gold-standard reference on the design and application of classic and modern antennas—fully updated to reflect the latest advances and technologies This new edition of the “bible of antenna engineering” has been updated to provide start-to-finish coverage of the latest innovations in antenna design and application. You will find in-depth discussion of antennas used in modern communication systems, mobile and personal wireless technologies, satellites, radar deployments, flexible electronics, and other emerging technologies, including 5G, terahertz, and wearable electronics. Antenna Engineering Handbook, Fifth Edition, is bolstered by real-world examples, hundreds of illustrations, and an emphasis on the practical aspects of antennas. Featuring 60 chapters and contributions from more than 80 renowned experts, this acclaimed resource is edited by one of the world’s leading antenna authorities. This edition features all of the classic antenna types, plus new and emerging designs, with 13 all-new chapters and important updates to nearly all chapters from past editions. Antenna Engineering Handbook, Fifth Edition, clearly explains cutting-edge applications in WLANs, automotive systems, PDAs, and handheld devices, making it an indispensable companion for today’s antenna practitioners and developers. Coverage includes: •Antenna basics and classic antennas •Design approaches for antennas and arrays•Wideband and multiband antennas•Antennas for mobile devices and PDAs, automotive applications, and aircraft•Base station and smart antennas•Beamforming and 5G antennas•Millimeter-wave and terahertz antennas•Flexible, wearable, thin film, origami, dielectric, and on-chip antennas•MIMO antennas and phased arrays•Direction-finding and GPS antennas•Active antennas•Low-profile wideband antennas•Nanoantennas•Reflectors and other satellite and radio-telescope antennas•Low-frequency, HF, VHF, UHF, ECM, and ESM antennas•Impedance-matching techniques and material characteristics•Metastructured and frequency selective surfaces•Propagation and guided structures•Computational techniques and toolsets•Indoor and outdoor measurements

Foundations of Radio for Scientists and Technologists-Christopher John Coleman 2018-08-23 An in-depth, physics-based introduction to the science and engineering of radio for non-specialists.

Engineering and Chemical Thermodynamics-Milo D. Koretsky 2012-12-17 Chemical engineers face the challenge of learning the difficult concept and application of entropy and the 2nd Law of Thermodynamics. By following a visual approach and offering qualitative discussions of the role of molecular interactions, Koretsky helps them understand and visualize thermodynamics. Highlighted examples show how the material is applied in the real world. Expanded coverage includes biological content and examples, the Equation of State approach for both liquid and vapor phases in VLE, and the practical side of the 2nd Law. Engineers will then be able to use this resource as the basis for more advanced concepts.

Probability, Random Variables, and Random Signal Principles-Peyton Z. Peebles 2015-02-01

Standard Handbook for Electrical Engineers, Seventeenth Edition-Surya Santoso 2017-11-24 Up-to-date coverage of every facet of electric power in a single volume This fully revised, industry-standard resource offers practical details on every aspect of electric power engineering. The book contains in-depth discussions from more than 100 internationally recognized experts. Generation, transmission, distribution, operation, system protection, and switchgear are thoroughly explained.

Standard Handbook for Electrical Engineers, Seventeenth Edition, features brand-new sections on measurement and instrumentation, interconnected power grids, smart grids and microgrids, wind power, solar and photovoltaic power generation, electric machines and transformers, power system analysis, operations, stability and protection, and the electricity market. Coverage includes: •Units, symbols, constants, definitions, and conversion factors •Measurement and instrumentation •Properties of materials •Interconnected power grids •AC and DC power transmission •Power distribution •Smart grids and microgrids •Wind power generation •Solar power generation and energy storage •Substations and switch gear •Power transformers, generators, motors, and drives •Power electronics •Power system analysis, operations, stability, and protection •Electricity markets •Power quality and reliability •Lightning and overvoltage protection •Computer applications in the electric power industry •Standards in electrotechnology, telecommunications, and IT

Microwave Devices and Circuits-Liao 1990-09

Modern RF and Microwave Measurement Techniques-Valeria Teppati 2013-06-20 A comprehensive, hands-on review of the most up-to-date techniques in RF and microwave measurement, including practical advice on deployment challenges.

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