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Protection Techniques in Electrical Energy Systems Ungrad 1995-08-03 Presenting the theoretical principles for, and current state of, electrical power system protection engineering, this work explains the functions of protection and control equipment. It provides application guidelines for every component to be protected in a system, and examines and compares American, British and continental protection philosophies.

Fundamentals of Optical Waveguides Katsunari Okamoto 2006 Fundamentals of Optical Waveguides is an essential resource for any researcher, professional or student involved in optics and communications engineering. Any reader interested in designing or actively working with optical devices must have a firm grasp of the principles of lightwave propagation. Katsunari Okamoto has presented this difficult technology clearly and concisely with several illustrations and equations. Optical theory encompassed in this reference includes coupled mode theory, nonlinear optical effects, finite element method, beam propagation method, staircase concatenation method, along with several central theorems and formulas. Since the publication of the well-received first edition of this book, planar lightwave circuits and photonic crystal fibers have fully matured. With this second edition the advances of these fibers along with other improvements on existing optical technologies are completely detailed. This comprehensive volume enables readers to fully analyze, design and simulate optical atmospheres. * Exceptional new chapter on Arrayed-Waveguide Grating (AWG) * In depth discussion of Photonic Crystal Fibers (PCFs) * Thorough explanation of Multimode Interference Devices (MMI) * Full coverage of polarization Mode Dispersion (PMD)

Principles of Network Analysis John E. Whitehouse 1991

Antennas with Non-Foster Matching Networks James T. Aberle 2007-12-01 Most antenna engineers are likely to believe that antennas are one technology that is more or less impervious to the rapidly advancing semiconductor industry. However, as demonstrated in this lecture, there is a way to incorporate active components into an antenna and transform it into a new kind of radiating structure that can take advantage of the latest advances in analog circuit design. The approach for making this transformation is to make use of non-Foster circuit elements in the matching network of the antenna. By doing so, we are no longer constrained by the laws of physics that apply to passive antennas. However, we must now design and construct very touchy active circuits. This new antenna technology is now in its infancy. The contributions of this lecture are (1) to summarize the current state-of-the-art in this subject, and (2) to introduce some new theoretical and practical tools for helping us to continue the advancement of this technology.

Electrical Machines and Drives John Hindmarsh 1996 Recent years have brought substantial developments in electrical drive technology, and the third edition of this popular introductory text on the subject has been thoroughly revised and updated to take these changes into account.

Classical Feedback Control Boris Lurie 2000-02-09 This text describes the design and implementation of high-performance feedback controllers for engineering systems. It emphasizes the frequency-domain design and methods based on Bode integrals, loop shaping and nonlinear dynamic compensation. The book also supplies numerous problems with practcal applications, illustrations and plots, together with MATLAB simulation and design examples.

Energy-efficient Operation of Commercial Buildings Peter H. Herzog 1997 Home to some the world's best museums, New York City is itself a free, public museum. The work of artists such as Marc Chagall, Keith Haring, Roy Lichtenstein, Ludwig Bemelmans, and more grace the walls and ceilings of the public spaces New Yorkers see every day. Whether it's cocktails at the Carlyle, taking in a show at Lincoln Center, traveling via subway, or flyingout of LaGuardia Airport, millions of people come into contact with the greatest public works of art. From uptown to downtown to the outer boroughs, the art created for the walls of New York City's bars, hotels, offices, government buildings, and schools have themselves created the identities of the rooms they live in.Murals of New York City is the first book to curate more than 30 of the most important, influential, and impressive murals found within all five boroughs of New York City. Photographer Joshua McHugh's full-color images of such works as Paul Helleu's famous "Mural of the Stars" on Grand Central Station's ceiling, Robert Crowl's "Dancers at the Bar" at Lincoln Center, Edward Lanning's McGraw's New York Public Library Rotunda, Jose Marie Sert and Frank Brangwyn's Rockefeller Center murals, and more, are accompanied by artist and muralist Glenn Palmer-Smith's informative and historical commentary. Perfect for art and architecture lovers, The Murals of New York City also serves as the perfect resource and souvenir for the millions of tourists who visit the city every year.

Popular Mechanics 1975-05 Popular Mechanics inspires, instructs and influences readers to help them master the modern world. Whether it’s practical DIY home-improvement tips, gadgets and digital technology, information on the newest cars or the latest breakthroughs in science -- PM is the ultimate guide to our high-tech lifestyle.

Design-tech Jason Alread 2007 Taking a fresh, holistic approach to the topic of architectural technology, this indispensable book looks at the 'why' as well as the 'how' of building science, providing a comprehensive, clear and concise introduction to the subject. The demands faced by architects in their training and education are constantly changing. Written by two practicing architects who teach building technology and design, this text ensures that the reader is given the full picture of the discipline, as it integrates technical material with design sensibilities. Incorporating structural design, environmental principles, material science and human factors, this book shows how these topics rely upon and influence one another in architectural design. It also relates the technical with the theoretical, illustrating how technology and design have influenced one another historically. Offering highly practical guidance to the essentials of building design, this book is the first to provide the full spectrum of building science for architects in one volume. Design-Tech includes hundreds of illustrations and numerous case studies that show how these theories work in practice. * A single volume integrating structual, environmental and construction engineering basics for architects * A holistic approach to technology, illustrating how it relates to the history and theory of architecture * Presents sustainable design as a given, with environmental design principles included throughout the text

The Athenæum 1851

“The” Athenaeum 1851

Power Electronics Design Handbook Nihal Kularatna 1998 Power Electronics Design Handbook covers the basics of power electronics theory and components while emphasizing modern low-power components and applications. Coverage includes power semiconductors, converters, power supplies, batteries, protection systems, and power ICs. One of the unique features of the Power Electronics Design Handbook is the integration of component and system theory with practical applications, particularly energy-saving low-power applications. Many chapters also include a section that looks forward to future developments in that area. References for further information or more in-depth technical reading are also included. Nihal Kularatna is a principal research engineer with the Arthur C. Clarke Foundation in Sri Lanka. He is also the author of Modern Electronic Test and Measuring Instruments, published by the Institute of Electrical Engineers. Emphasizes low- and medium-power components Offers a unique mix of theory and practical application Provides a useful guide to further reading

Electric Machines Dino Zorbas 1989

Development of a New Material P. C. S. Hayfield 2002 This unique book describes the conception of a new material - an electrically conducting ceramic - and the practical work involved in its development and production. The solid-state physics and chemistry of the material are discussed in detail, along with the way in which properties are structure-dependent. The book goes on to review a wide range of practical applications for the new material, identifying factors which proved especially attractive or which prevented further developments. Including data never previously published, and an extensive bibliography of both papers and patents, Development of a New Material: Monolithic Ti4O7 Ebonex(R) Ceramic will enable practitioners and researchers to identify possible new application areas, as well as the strengths and weaknesses of the material.

Electric Circuits AC/DC Charles I. Hubert 1982

Digital Electronics Christopher E. Strangio 1980 Logic concepts; Boolean algebra; Combinational logic; Binary number operations; Flip-flops; Counter analysis and design; Sequential circuits; Digital circuit fault analysis; Analog-digital conversion; Computers and microprocessors.

Getting Started in Digital Troubleshooting James Coffron 1979

Introduction to Mechatronics and Measurement Systems David G. Alciatore 2007 Providing comprehensive coverage of the field of mechatronics, this book is useful for mechanical, electrical and aerospace engineering majors. It presents a review of electrical circuits, solid-state devices, digital circuits, and motors. It also includes many illustrations, examples, class discussion items, and chapter questions and exercises.

Microactuators Massood Tabib-Azar 1998 Microactuators provides a comprehensive coverage of the emerging topic of microactuators that has attracted much attention in recent years. Largely owing to the microfabrication methods used in the microelectrics industry, microactuators are being developed at a very fast rate. Although there have been some excellent review articles covering parts of this important field, until now there has not been a single book devoted to its comprehensive coverage. Microactuators covers the fundamentals of actuation in a textbook manner and it exposes the reader to some research examples. In combining fundamentals with the latest reported actuators, this book distinguishes itself from other monographs or textbooks. The main intended audiences of Microactuators are academic and industrial researchers and graduate students interested in initiating projects in microactuators. It can also be used as a textbook for a senior/graduate level course in the general area of sensors and actuators.

Introduction to Superconducting Circuits Alan M. Kadin 1999 Superconductivity made accessible-a unique introduction. Does superconductivity have to be hard to understand? No, says Alan Kadin, as he proceeds to make the field accessible to engineers, applied physicists, even undergraduate students in electrical engineering. Setting advanced theories aside, Dr. Kadin uses simple circuit models to develop an understanding of the physics of superconductors, then applies this knowledge to superconducting circuits and systems. He covers cutting-edge circuit applications and materials along with practical examples-giving readers insight into the pros and cons of various superconductors and what superconductivity has to offer for different disciplines. End-of-chapter problems as well as numerous conceptual line drawings, circuit schematics, and plots complement the following topics: * The central role of inductance and kinetic inductance. * Transmission line model for RF and dc properties. * Dual circuit transformations to follow vortex and fluxon motion. * A balanced coverage of low-temperature and high-temperature superconductors. * Both large-scale (power) and small-scale (electronic) applications. * Applications of superconducting devices to electromagnetic radiation detectors. * The use of SPICE to simulate Josephson junctions and circuits. *An Instructor's Manual presenting detailed solutions to all the problems in the book is available from the Wiley editorial department.

Joining of Materials and Structures Robert W. Messler 2004 Joining of Materials and Structures is the first and only complete and highly readable treatment of the options for joining conventional materials and the structures they comprise in conventional and unconventional ways, and for joining emerging materials and structures in novel ways. Joining by mechanical fasteners, integral designed-or formed-in features, adhesives, welding, brazing, soldering, thermal spraying, and hybrid processes are addressed as processes and technologies, as are issues associated with the joining of metals, ceramics (including cement and concrete) glass, plastics, and composites (including wood), as well as, for the first time anywhere, living tissue. While focused on materials issues, issues related to joint design, production processing, quality assurance, process economics, and joint performance in service are not ignored. The book is written for engineers, from an in-training student to a seasoned practitioner by an engineer who chose to teach after years of practice. By reading and referring to this book, the solutions to joining problems will be within one's grasp. Key Features: • Unprecedented coverage of all joining options (from lashings to lasers) in 10 chapters • Uniquely complete coverage of all materials, including living tissues, in 6 chapters • Richly illustrated with 76 photographs and 233 illustrations or plots • Practice Questions and Problems for use as a text of for reviewing to aid for comprehension * Coverage all of major joining technologies, including welding, soldering, brazing, adhesive and cement bonding, pressure fusion, riveting, bolting, snap-fits, and more * Organized by both joining techniques and materials types, including metals, non-metals, ceramics and glasses, composites, biomaterials, and living tissue * An ideal reference for design engineers, students, package and product designers, manufacturers, machinists, materials scientists

Digital Logic and State Machine Design David J. Comer 1990 From one of the best-known and successful authors in the field comes this new edition of Digital Logic and State Machine Design. The text is concise and practical, and covers the important area of digital system design specifically for undergraduates. Comer's primary goal is to illustrate that sequential circuits can be designed using state machine techniques. These methods apply to sequential circuit design as efficiently as Boolean algebra and Karnaugh mapping methods apply to combinatorial design. After presenting the techniques, Comer proceeds directly into designing digital systems. This task consists of producing the schematic or block diagram of the system based on nothing more than a given set of specifications. The design serves as the basis for the construction of the actual hardware system. In the new Third Edition, Comer introduces state machines earlier than in previous editions, and adds entire chapters on programmable logic devices and computer organization.

Electrical Engineering Reference Manual Raymond B. Yarbrough 1990 Professor Yarbrough has designed his Electrical Engineering Reference Manual to be a single reference for the broad field of electrical engineering, giving electrical engineering PE applicants the best exam review possible. Using tables, figures, and problem-solving techniques, this manual thoroughly covers every exam subject, including operational amplifier circuits and systems of units. It contains more than 400 practice problems, and fully worked-out solutions are found in the separate Solutions Manual.

Solving Problems in Electrical Power and Power Electronics H. F. G. Gwyther 1988

Logic Machines and Diagrams Martin Gardner 1982

Construction Databook Sidney M. Levy 1999 Stay on top of construction details and procedures with the help of this illustrated data handbook. It offers fast access to hundreds of tables, charts, diagrams, and illustrations, covering all the components of construction utilized at a typical job site.This complete reference manual will provide you wiht a single source of specifications, codes, checklists, conversion factors, and "how-to" instructions for the most commonly used construction materials, including lumber, masonry, concrete, steel, doors, windows, hardware, and mechanical and electrical components.

Handbook of Electrical Design Details John E. Traister 1997 This massive handbook provides a vast array of layout details for electrical systems in residential, commercial, and industrial buildings and facilities. Hundreds of ready-to-use drawings show the complete design and layout details of electrical systems for lighting, power, signal and communications systems, raceways, and related equipment. 2,500 illus.

Electronic Servicing of Robotic Equipment Joel Goldberg 1985

Offshore Electrical Engineering Geoff T. Gerrard 1992 Covers certain specific systems utilized in offshore engineering and tested in the North Sea, such as general alarm systems, platform PABXs,

marine radio telephones, aeronautical VHF radio, non-directional beacons, satellite subsea well control systems and more.

Lightwave Technology Govind P. Agrawal 2004-06-02 A comprehensive treatise on the components and devices of the lightwave explosion Multiple advances in lightwave technology have led to a veritable overload of global information systems throughout the world. Given the sheer number and growing importance of such systems, Govind Agrawal's Lightwave Technology answers the need for a comprehensive and up-to-date account of all major aspects of this rapidly expanding field. Components and Devices, the first independent volume of this two-volume engineering resource, is devoted to describing a multitude of today's silica- and semiconductor-based optical devices. Conceived and written by the foremost expert and bestselling author in the fiber optic field, the text provides detailed, in-depth coverage of both theoretical and practical aspects of the science, including: * Fiber optics * Passive and active fiber components * Planar waveguides * Semiconductor lasers and amplifiers * Optical modulators * Photodetectors * WDM components * Space- and time-domain switching The second volume, Lightwave Technology: Communication Systems, deals with the design and performance of modern transmission systems making use of these devices. Complete with chapter problems, a CD, and a Solutions Manual, this title serves as both a basic text book for students and a practical everyday reference for engineers and researchers in the field.

Handbook of Electrical Engineering Alan L. Sheldrake 2003-06-02 A practical treatment of power system design within the oil, gas, petrochemical and offshore industries. These have significantly different characteristics to large-scale power generation and long distance public utility industries. Developed from a series of lectures on electrical power systems given to oil company staff and university students, Sheldrake's work provides a careful balance between sufficient mathematical theory and comprehensive practical application knowledge. Features of the text include: Comprehensive handbook detailing the application of electrical engineering to the oil, gas and petrochemical industries Practical guidance to the electrical systems equipment used on off-shore production platforms, drilling rigs, pipelines, refineries and chemical plants Summaries of the necessary theories behind the design together with practical guidance on selecting the correct electrical equipment and systems required Presents numerous 'rule of thumb' examples enabling quick and accurate estimates to be made Provides worked examples to demonstrate the topic with practical parameters and data Each chapter contains initial revision and reference sections prior to concentrating on the practical aspects of power engineering including the use of computer modelling Offers numerous references to other texts, published papers and international standards for guidance and as sources of further reading material Presents over 35 years of experience in one self-contained reference Comprehensive appendices include lists of abbreviations in common use, relevant international standards and conversion factors for units of measure An essential reference for electrical engineering designers, operations and maintenance engineers and technicians.

Power System Simulation J.P. Barret 1996-12-31 The authors, writing with the experience and technological background of Electricite de France, an organisation at the forefront of simulation methods, provide a comprehensive and comprehensible treatment of the modelling and simulation techniques currently in use. The text emphasises model design applied to power plants producing energy, generators and motors carrying out energy transformations and networks transmitting energy. The systems are analysed considering each process, from steady state to fast transients, with detailed explanation of the problem to be solved, the choice of models and methods for optimising efficiency. Many examples and references are provided. The book is essential reading for anyone involved in power system engineering, from practising design and development engineers to researchers and postgraduate and advanced graduate students.

Design and Development of Medical Electronic Instrumentation David Prutchi 2004-11-22 Design and Development of Medical Electronic Instrumentation fills a gap in the existing medical electronic devices literature by providing background and examples of how medical instrumentation is actually designed and tested. The book includes practical examples and projects, including working schematics, ranging in difficulty from simple biopotential amplifiers to computer-controlled defibrillators. Covering every stage of the development process, the book provides complete coverage of the practical aspects of amplifying, processing, simulating and evoking biopotentials. In addition, two chapters address the issue of safety in the development of electronic medical devices, and providing valuable insider advice.

Distributed Generation Loi Lei Lai 2007-11-28 Distributed power generation is a technology that could help to enable efficient, renewable energy production both in the developed and developing world. It includes all use of small electric power generators, whether located on the utility system, at the site of a utility customer, or at an isolated site not connected to the power grid. Induction generator (IG) is the most commonly used and cheapest technology, compatible with renewable energy resources. Permanent magnet (PM) generators have traditionally been avoided due to high fabrication costs; however, compared with IGs they are more reliable and productive. Distributed Generation thoroughly examines the principles, possibilities and limitations of creating energy with both IGs and PM generators. It takes an electrical engineering approach in the analysis and testing of these generators, and includes diagrams and extensive case study examples to better demonstrate how the integration of energy sources can be accomplished. The book also provides the practical tools needed to model and implement new techniques for generating energy through isolated or grid-connected systems. Besides a chapter introducing the technical, economic and environmental impacts of distributed generation, this book includes: an examination of various phase-balancing schemes for a three-phase IG operating on a single-phase power system; a coupled circuit 2-D finite element analysis of a grid-connected IG, with Steinmetz connection; a study of self-excited induction generator (SEIG) schemes for autonomous power systems, and the voltage and frequency control of SEIG with a slip-ring machine (SESRIG); a report on a PM synchronous generator with inset rotor for achieving a reduced voltage regulation when supplying an autonomous power system, and an analysis of its performance using a two-axis model and finite element method; experimental work on various IG and SEIG schemes. This book is a must-read for engineers, consultants, regulators, and environmentalists involved in energy production and delivery, helping them to evaluate renewable energy sources and to integrate these into an efficient energy delivery system. It is also a superior reference for undergraduates and postgraduates. Designers, operators, and planners will appreciate its unique contribution to the literature in this field.

Conducting Polymers, Fundamentals and Applications Prasanna Chandrasekhar 1999-08-31 This book deals with the practical fundamentals and applications of conducting polymers. Written from a pedagogical point of view and at a very basic level, it provides a thorough grounding in CPs ideal for further work, as a reference, or as a supplementary course text.

High-frequency Application of Semiconductor Devices Ferenc Kovács 1981

Power System Dynamics and Stability Jan Machowski 1997-10-20 As the demand for electrical power increases, power systems are being operated closer to their stability limits than ever before. This text focuses on explaining and analysing the dynamic performance of such systems which is important for both system operation and planning. Placing emphasis on understanding the underlying physical principles, the book opens with an exploration of basic concepts using simple mathematical models. Building on these firm foundations the authors proceed to more complex models and algorithms. Features include: * Progressive approach from simplicity to complexity. * Detailed description of slow and fast dynamics. * Examination of the influence of automatic control on power system dynamics. * Stability enhancement including the use of PSS and Facts. * Advanced models and algorithms for power system stability analysis. Senior undergraduate, postgraduate and research students studying power systems will appreciate the authors' accessible approach. Also for electric utility engineers, this valuable resource examines power system dynamics and stability from both a mathematical and engineering viewpoint.

Materials Science of Thin Films Milton Ohring 2002 This is the first book that can be considered a textbook on thin film science, complete with exercises at the end of each chapter. Ohring has contributed many highly regarded reference books to the AP list, including Reliability and Failure of Electronic Materials and the Engineering Science of Thin Films. The knowledge base is intended for science and engineering students in advanced undergraduate or first-year graduate level courses on thin films and scientists and engineers who are entering or require an overview of the field. Since 1992, when the book was first published, the field of thin films has expanded tremendously, especially with regard to technological applications. The second edition will bring the book up-to-date with regard to these advances. Most chapters have been greatly updated, and several new chapters have been added.

Engineering Design for Electrical Engineers Alan D. Wilcox 1990 A supplementary book for a project or senior design course. It provides a unified methodical approach to engineering design projects by first examining project design principles, then ullustrating their applications in six modules in digital, analog, electromagnetics, control, communications, and power.

MOS/LSI Design and Application William N. Carr 1972