Modern Digital Electronics By R P Jain 3rd Edition

Microsystems for Bioelectronics is the ultimate guide in the biomedical application industry. It provides a physics-based assessment of the limitless potential of miniaturization technologies. This book goes far beyond the complete design of the final systems. It also discusses the developments of computation and communication subsystems. The future of this technology lies in understanding the scaling limits for the individual systems. This includes all of its components and the fundamental energy source that powers all autonomous microsystems. Rapid advances in microfabrication technologies are offering new opportunities and capabilities to develop systems for biomedical applications. These applications include the diagnostics community and those that are active in therapy services. Microsystems for Bioelectronics is one of the only books on the market today that goes into the comprehensive treatment of integrated microsystems. Discusses the diverse components that make up Microsystems Outlines the problems with miniaturization of energy sources Perfect reference for those in both the Engineering and Medical Profession

Advanced Control of Aircraft, Spacecraft and Rockets introduces the reader to the concepts of modern control theory applied to the design and analysis of general flight control systems in a concise and mathematically rigorous style. It presents a comprehensive treatment of both atmospheric and space flight control systems including aircraft, rockets (missiles and launch vehicles), entry vehicles and spacecraft (both orbital and attitude control). The broad coverage of topics emphasizes the synergies among the various flight control systems and attempts to show their evolution from the same set of physical principles as well as their design and analysis by similar mathematical tools. In addition, this book presents state-of-art control system design methods - including multivariable, optimal, robust, digital and nonlinear strategies - as applied to modern flight control systems. Advanced Control of Aircraft, Spacecraft and Rockets features worked examples and problems at the end of each chapter as well as a number of MATLAB / Simulink examples housed on an accompanying website at http://home.iitk.ac.in/~ashtew that are realistic and representative of the state-of-the-art in flight control.

Interferometric synthetic aperture radar (InSAR) is a relatively new remote sensing tool that is capable of measuring ground-surface deformation with centimeter-to-subcentimeter precision at a spatial resolution of tens of meters over an area of hundreds to thousands of square kilometers. With its global coverage and all-weather imaging capability, InSAR has become an increasingly important technique for studying volcanoes in remote regions such as the Aleutian Islands. The spatial distribution of surface deformation data derived from InSAR images enables the construction of detailed mechanical models to enhance the study of magmatic processes. InSAR Imaging of Aleutian Volcanoes: • Provides a theoretical framework for InSAR observations and capabilities • Discusses state-of-the-art InSAR analysis techniques • Describes the structure, eruptive history, and magma composition of volcanoes along the entire Aleutian arc • Presents conceptual models for the magma plumbing systems of Aleutian volcanoes based on InSAR results combined with geophysical, geological and geochemical observations. • Synthesizes observations of deformation along the Aleutian arc and compares those results to other active arcs around the world. • Is illustrated throughout with high-resolution color satellite radar images

Rapid advances in microelectronic integration and the advent of Systems-on-Chip have fueled the need for high-level synthesis, i.e., an automated approach to the synthesis of hardware from behavioral descriptions. SPARK: A Parallelizing Approach to the High - Level Synthesis of Digital Circuits presents a novel approach to the high-level synthesis of digital circuits -- that of parallelizing high-level synthesis (PHLS). This approach uses aggressive code parallelizing and code motion techniques to discover circuit optimization opportunities beyond what is possible with traditional high-level synthesis. This PHLS approach addresses the problems of the poor quality of synthesis results and the lack of controllability over the transformations applied during the high-level synthesis of system descriptions with complex control flows, that is, with nested conditionals and loops. Also described are speculative code motion techniques and dynamic compiler transformations that optimize the circuit quality in terms of cycle time, circuit size and interconnect costs. We describe the SPARK parallelizing high-level synthesis framework in which we have implemented these techniques and demonstrate the utility of SPARK's PHLS approach using designs derived from multimedia and image processing applications. We also present a case study of an instruction length decoder derived from the Intel Pentium-class of microprocessors. This case study serves as an example of a typical microprocessor functional block with complex control flow and demonstrates how our techniques are useful for such designs. SPARK: A Parallelizing Approach to the High - Level Synthesis of Digital Circuits is targeted mainly to embedded system designers and researchers. This includes people working on design and design automation. The book is useful for researchers and design automation engineers who wish to understand how the main problems hindering the adoption of high-level synthesis among designers.

This book presents computer simulations using molecular dynamics techniques in statistical physics, with a focus on macromolecular systems. The numerical methods are introduced in the form of computer algorithms and can be implemented in computers using any desired computer programming language, such as Fortran 90, C/C++, and others. The book also explains how some of these numerical methods and their algorithms can be implemented in the existing computer programming software of macromolecular systems, such as the CHARMM program. In addition, it examines a number of advanced concepts of computer simulation techniques used in statistical physics as well as biological and physical systems. Discussing the molecular dynamics approach in detail to enhance readers understanding of the use of this method in statistical physics problems, it also describes the equations of motion in various statistical ensembles to mimic real-world experimental conditions. Intended for graduate students and research scientists working in the field of theoretical and computational biophysics, physics and chemistry, the book can also be used by postgraduate students of other disciplines, such as applied mathematics, computer sciences, and bioinformatics. Further, offering insights into fundamental theory, it as a valuable resource for expert practitioners and programmers and those new to the field.

Lists citations with abstracts for aerospace related reports obtained from world wide sources and announces documents that have recently been entered into the NASA Scientific and Technical Information Database.

This comprehensive text examines existing and emerging electrical drive technologies. The authors clearly define the most basic electrical drive concepts and go on to explain the most important details while maintaining a solid connection to the theory and design of the associated electrical machines. Also including links to a number of industrial applications, the authors take their investigation of electrical drives beyond theory to examine a number of practical aspects of electrical drive control and application. Key features: * Provides a comprehensive summary of all aspects of controlled-speed electrical drive technology including control and operation. * Handling of electrical drives is solidly linked to the theory and design of the associated electrical machines. Added insight into problems and functions are illustrated with clearly understandable figures. * Offers an understanding of the main phenomena associated with electrical machine drives. * Considers the problem of bearing currents and voltage stresses of an electrical drive. * Includes up-to-date theory and design guidelines, taking into account the most recent advances. This book's rigorous coverage of theoretical principles and techniques makes for an excellent introduction to controlled-speed electrical drive technologies for Electrical Engineering MSc or PhD students studying electrical drives. It also serves as an excellent reference for practicing electrical engineers looking to carry out design, analyses, and development of controlled-speed electrical

drives.

The 109 articles making up the book have all appeared in Electronics magazine (from) 1961 to 1963.

Designed specifically for undergraduate students of Electronics and Electrical Engineering and its related disciplines, this book offers an excellent coverage of all essential topics and provides a solid foundation for analysing electronic circuits. It covers the course named Electronic Devices and Circuits of various universities. The book will also be useful to diploma students, AMIE students, and those pursuing courses in B.Sc. (Electronics) and M.Sc. (Physics). The students are thoroughly introduced to the full spectrum of fundamental topics beginning with the theory of semiconductors and p-n junction behaviour. The devices treated include diodes, transistors—BJTs, JFETs and MOSFETs—and thyristors. The circuitry covered comprises small signal (ac), power amplifiers, oscillators, and operational amplifiers including many important applications of those versatile devices. A separate chapter on IC fabrication technology is provided to give an idea of the technologies being used in this area. There are a variety of solved examples and applications for conceptual understanding. Problems at the end of each chapter are provided to test, reinforce and enhance learning.

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Steganography is the art of secret writing. The purpose of steganography is to hide the presence of a message from the intruder by using state-of-the-art methods, algorithms, architectures, models, and methodologies in the domains of cloud, internet of things (IoT), and the Android platform. Though security controls in cloud computing, IoT, and Android platforms are not much different than security controls in an IT environment, they might still present different types of risks to an organization than the classic IT solutions. Therefore, a detailed discussion is needed in case there is a breach in security. It is important to review the security aspects of cloud, IoT, and Android platforms related to steganography to determine how this new technology is being utilized and improved continuously to protect information digitally. The benefits and challenges, along with the current and potential developments for the future, are important keystones in this critical area of security research. Multidisciplinary Approach to Modern Digital Steganography reviews the security aspects of cloud, IoT, and Android platforms related to steganography and addresses emerging security concerns, new algorithms, and case studies in the field. Furthermore, the book presents a new approach to secure data storage on cloud infrastructure and IoT along with including discussions on optimization models and security controls that could be implemented. Other important topics include data transmission, deep learning techniques, machine learning, and both image and text stenography. This book is essential for forensic engineers, forensic analysts, cybersecurity analysts, cyber forensic examiners, security engineers, cybersecurity network analysts, cyber network defense analysts, and digital forensic examiners along with practitioners, researchers, academicians, and students interested in the latest techniques and state-of-the-art methods in digital steganography.

The Transactions on Computational Science journal is part of the Springer series Lecture Notes in Computer Science, and is devoted to the gamut of computational science issues, from theoretical aspects to application-dependent studies and the va- dation of emerging technologies. The current issue is devoted to computer systems research and the application of such research, which naturally complement each other. The issue is comprised of Part 1: Computational Visualization and Optimization, and Part 2: Computational Methods for Model Design and Analysis. Part 1 – Computational Visualization and Optimization – is devoted to state-of-the-art research carried out in this area with the use of novel computational methods. It is c- prised of five papers, each addressing a specific computational problem in the areas of shared virtual spaces, dynamic visualization, multimodal user interfaces, computational geometry, and parallel simulation, respectively. Part 2 – Computational Methods for Model Design and Analysis – continues the topic with an in-depth look at selected computational science research in the areas of data representation and analysis. The four papers comprising this part cover such areas as efficient reversible logic design, missing data analysis, stochastic computation and neural network representation for eccentric sphere models. Each paper describes a detailed experiment or a case study of the methodology presented to amplify the impact of the contribution.

As the limits of electrical performance come within sight, photons are poised to take over for the electron. But the search continues for the materials, topologies, and fabrication technologies capable of producing photonic devices at a reasonable speed and cost. Taking a fundamentallook at the development of photonic technology from the macro- to the microscale, Applied Microphotonics introduces the major principles and technologies underlying the field. Following an overview of historical and commercial driving forces, the authors briefly review the underlying physics, emphasizing the practical and design implications for photonic systems. This general discussion lays the foundation for the remainder of the book, where the authors first introduce the photonic node and then discuss each subsystem in detail, including transmitters, couplers and switches, multiplexers and demultiplexers, receivers, amplifiers, and compensators. The following chapters explore new technologies such as photonic band gap structures, materials and fabrication processes, integration methodologies, and advanced devices such as photonic computers. The book concludes with a brief introduction to quantum photonics and a forward look at potential directions of photonics. Applied Microphotonics encapsulates the recent push toward all-optical networks and devices with an applications-oriented perspective. It is ideal

for newcomers to the field as well as anyone curious to know how photonic technology can benefit their own field. ??Holt,Rinchart and Winston 1983??????. -- ??: Modern digital and analog communication systems/B. P. Lathi Modern Digital Design and Switching Theory is an important text that focuses on promoting an understanding of digital logic and the computer programs used in the minimization of logic expressions. Several computer approaches are explained at an elementary level, including the Quine-McCluskey method as applied to single and multiple output functions, the Shannon expansion approach to multilevel logic, the Directed Search Algorithm, and the method of Consensus. Chapters 9 and 10 offer an introduction to current research in field programmable devices and multilevel logic synthesis. Chapter 9 covers more advanced topics in programmed logic devices, including techniques for input decoding and Field-Programmable Gate Arrays (FPGAs). Chapter 10 includes a discussion of boolean division, kernels and factoring, boolean tree structures, rectangle covering, binary decision diagrams, and if-then-else operators. Computer algorithms covered in these two chapters include weak division, iterative weak division, and kernel extraction by tabular methods and by rectangle covering theory. Modern Digital Design and Switching Theory is an excellent textbook for electrical and computer engineering students, in addition to a worthwhile reference for professionals working with integrated circuits.

The first edition of High Power Microwaves was considered to be the defining book for this field. Not merely updated but completely revised and rewritten, the second edition continues this tradition. Written from a systems perspective, the book provides a unified, coherent presentation of the fundamentals in this rapidly changing field. The p

The revised edition of Modern Digital Electronics focuses on rigorous coverage of design and analysis of complex digital circuits and systems through enhanced elucidation of Sequential Logic Design, PLDs, Memories and VHDL implementation codes. Begins with the fundamental concepts of digital electronics, it covers digital design using VHDL supported by plethora of examples.

DIGITAL ELECTRONICS offers a comprehensive, computer-supported introduction to digital electronics, from basic electrical theory and digital logic to hands-on, high-tech applications. Designed to support Project Lead the Way's (PLTW) innovative Digital Electronics (DE) curriculum, this dynamic text prepares students for college and career success in STEM (Science, Technology, Engineering, and Math). The text introduces core concepts such as electrical shop practices and electrical theory, enables students to gain confidence by exploring key principles and applying their knowledge, and helps develop sophisticated skills in circuit analysis, design, and troubleshooting. Many of the text's abundant examples and exercises support the use of Multisim, allowing students to visualize and analyze circuits including combinational and sequential circuits before constructing them. In addition, a variety of proven learning tools make mastering the material easier, including self-check problems in every chapter, Bring it Home questions to solidify core concepts, and challenging Extra Mile problems to help students deepen their understanding and hone their skills. As an integrated part of your PLTW program or a stand-alone classroom resource, DIGITAL ELECTRONICS is an ideal choice to support your students' STEM success. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Includes Part 1, Number 1: Books and Pamphlets, Including Serials and Contributions to Periodicals (January - June)

The book covers the complete syllabus of subject as suggested by most of the universities in India. Generic VHDL code is taught and used through out the book so that different companies. VHDL tools can be used if desired. Moving from the unknown in a logical manner. Subject matter in each chapter develops systematically from inceptions. Large number of carefully selected worked examples in sufficient details. No other reference is required. Ideally suited for self-study.

Butterworth-Heinemann's Aircraft Engineering Principles and Practice Series provides students, apprentices and practicing aerospace professionals with the definitive resources to advance their aircraft engineering maintenance studies and career. This book provides an introduction to the principles of aircraft digital and electronic systems. It is written for anyone pursuing a career in aircraft maintenance engineering or a related aerospace engineering discipline, and in particular will be suitable for those studying for licensed aircraft maintenance engineer status as part of an EASA or FAR-147 approved course or taking Aerospace Engineering City and Guilds modules, EDEXCEL National Units, EDEXCEL Higher National Units or a Degree in aircraft engineering.

Paper-I | Waves & Osciiiations | Properties Of Matters | Thermal Physics | Electricity And Magnetism | Geometrical Optics | Paper-Ii | Physical Optics | Atomic Physics | Nuclear Physics | Elements Of Relativity And Uantum Mechanics | Electronics Practical Physics | Young'S Modulus By Non-Uniform Bending | Young'S Modulus (E) Non-Uniform Bending | Rigidity Modulus (Static Torsion Method)|Rigidity Modulus By Tosicenal Oscillations | Surface Tension And Interfacial Surface Tension Drop Weight Method | Comparision Of Viscosities Of Two Liquids—Burette Method | Specific Heat Capacity Of A Liquid | Sonometer— Frequency Of A.C. Mains | Determination Of Radius Of Curvature | Air Wedge — Thickness Of A Wire | Spectrometer-Diffraction On Gravity- Wevelength Of Hg Lines | Potentiometer-Voltmeter Calibration | Post Office Box-Measure Of Resistance And Specific Resistance | Ballistic Galvanometer Figure Of Merit | Logic Gates And, Or, Not | Zener Diode Characteristics | Nand Gate As A Universal Gate

This book presents select proceedings of International Conference on Energy, Material Sciences and Mechanical Engineering (EMSME) 2020, held at National Institute of Technology Delhi. Various topics covered in this book include clean materials, solar energy systems, wind energy systems, power optimization, grid integration of renewable energy, smart energy storage technologies, artificial intelligence in solar and wind system, analysis of clean energy material in environment, converter topology, modelling and simulation. This book will be useful for researchers and professionals working in the areas of solar material science, electrical engineering, and energy technologies.

This book provides undergraduate physics majors and students of related sciences with a sound basic understanding of electronics and how it is used, principally in the physical sciences. While today few science students go on to careers that demand an ability to design and build electronic circuits, many will use and rely on electronics. As scientists, they will require an appropriate level of fundamental knowledge that enables them, for example, to understand what electronic equipment is doing, to correctly interpret the measurements obtained, and to appreciate the numerous links between electronics and how it is practiced, and other areas of science. Discussing electronics in the broader context and from the point of view of the scientist, this book is intended for students who are not planning to become electronics specialists. It has been written in a relatively informal, personal style and includes detailed examples, as well as some "outside the

box" material to inspire thought and creativity. A selection of relevant exercises is included at the end of each chapter.