

Solid State Electronic Devices 7th Edition

9780133356038

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It is your agreed own get older to comport yourself reviewing habit. accompanied by guides you could enjoy now is **Solid State Electronic Devices 7th Edition 9780133356038** below.

Physical Properties of Semiconductors -

Charles M. Wolfe 1989

Noise in Solid State Devices and Circuits -

Albert Van der Ziel 1986-05-13

Gives basic and up-to-date information about noise sources in electronic devices.

Demonstrates how this information can be used to calculate the noise performance, in particular the noise figure, of electronic circuits using these devices. Optimization procedures, both for the circuits and for the devices, are then devised based on these data. Gives an elementary treatment of thermal noise, diffusion noise, and velocity-fluctuation noise, including quantum effects in thermal noise and maser noise.

Gallium Nitride (GaN) - Farid Medjdoub
2017-12-19

Addresses a Growing Need for High-Power and High-Frequency Transistors Gallium Nitride (GaN): Physics, Devices, and Technology offers a balanced perspective on the state of the art in gallium nitride technology. A semiconductor commonly used in bright light-emitting diodes, GaN can serve as a great alternative to existing devices used in microelectronics. It has a wide band gap and high electron mobility that gives it special properties for applications in optoelectronic, high-power, and high-frequency devices, and because of its high off-state breakdown strength combined with excellent on-state channel conductivity, GaN is an ideal candidate for switching power transistors.

Explores Recent Progress in High-Frequency GaN Technology Written by a panel of academic

and industry experts from around the globe, this book reviews the advantages of GaN-based material systems suitable for high-frequency, high-power applications. It provides an overview of the semiconductor environment, outlines the fundamental device physics of GaN, and describes GaN materials and device structures that are needed for the next stage of microelectronics and optoelectronics. The book details the development of radio frequency (RF) semiconductor devices and circuits, considers the current challenges that the industry now faces, and examines future trends. In addition, the authors: Propose a design in which multiple LED stacks can be connected in a series using interband tunnel junction (TJ) interconnects Examine GaN technology while in its early stages of high-volume deployment in commercial and military products Consider the potential use of both sunlight and hydrogen as promising and prominent energy sources for this technology Introduce two unique methods, PEC oxidation and vapor cooling condensation methods, for the deposition of high-quality oxide layers A single-source reference for students and professionals, Gallium Nitride (GaN): Physics, Devices, and Technology provides an overall assessment of the semiconductor environment, discusses the potential use of GaN-based technology for RF semiconductor devices, and highlights the current and emerging applications of GaN.

The Context of Business - Len Karakowsky
2014-02-01

Understanding the Canadian Business Environment is the only ground-up Canadian

text that emphasizes an analytical approach using case orientation to understanding the core material students need to be successful post-graduation. The text takes the reader on a journey that explores the environment within which business operates--both within the Canadian context and within the global context. The reader will be introduced to a variety of perspectives, theories, and concepts that shed light on real business issues.

Optical Properties and Applications of Semiconductors - Inamuddin 2022-07-18

Semiconductors with optical characteristics have found widespread use in evolving semiconductor photovoltaics, where optical features are important. The industrialization of semiconductors and their allied applications have paved the way for optical measurement techniques to be used in new ways. Due to their unique properties, semiconductors are key components in the daily employed technologies in healthcare, computing, communications, green energy, and a range of other uses. This book examines the fundamental optical properties and applications of semiconductors. It summarizes the information as well as the optical characteristics and applicability of semiconductors through an in-depth review of the literature. Accomplished experts in the field share their knowledge and examine new developments. FEATURES Comprehensive coverage of all types of optical applications using semiconductors Explores relevant composite materials and devices for each application Addresses the optical properties of crystalline and amorphous semiconductors Describes new developments in the field and future potential applications Optical Properties and Applications of Semiconductors is a comprehensive reference and an invaluable resource for engineers, scientists, academics, and industry R&D teams working in applied physics.

Algebra 1 - Paul A. Foerster 2005-01-01

This highly motivational text approaches the study of algebra with imaginative applications and clear problems derived from the real world. Technology tools are used to assist with time-consuming calculations and to integrate graphing and problem-solving skills.

Fundamentals of Communication Systems - John

G. Proakis 2014

For one- or two-semester, senior-level undergraduate courses in Communication Systems for Electrical and Computer Engineering majors. This text introduces the basic techniques used in modern communication systems and provides fundamental tools and methodologies used in the analysis and design of these systems. The authors emphasize digital communication systems, including new generations of wireless communication systems, satellite communications, and data transmission networks. A background in calculus, linear algebra, basic electronic circuits, linear system theory, and probability and random variables is assumed.

Excellence in Business Communication S/G - John V. Thill 2004-05

The American Community College - Arthur M. Cohen 1989-09-25

This monograph provides a comprehensive overview of community college education in the United States, emphasizing trends affecting two-year colleges within the past decade. Chapter 1 identifies the social forces that contributed to the development and expansion of community colleges and the continuing changes in institutional purposes. Chapter 2 examines the shifting patterns of student characteristics and goals, the reasons for the predominance of part-time attendance, participation and achievement among minority students, attrition issues, and recent moves toward student assessment. Chapter 3 draws on national data to illustrate the differences between full- and part-time faculty and discusses issues related to tenure, salary, workload, faculty evaluation, moonlighting, burnout, and job satisfaction. Chapter 4 reviews the changes that have taken place in college management as a result of changes in institutional size, the advent of collective bargaining, reductions in available funds, and changes in governance and control. Chapter 5 describes various funding patterns and their relationship to organizational shifts. Chapter 6 discusses the rise of learning resource centers and the maintenance of stability in instructional forms in spite of the introduction of a host of reproducible instructional media. Chapter 7 considers student personnel

functions, including counseling, guidance, recruitment, retention, orientation, and extracurricular activities. Chapter 8 traces the rise of occupational education, as it has moved from a peripheral to a central position in the curriculum. Chapter 9 focuses on remedial and developmental programs and addresses the controversies surrounding student assessment and placement. Chapter 10 deals with adult and continuing education, lifelong learning, and community services. Chapters 11 and 12 examine curricular trends in the liberal arts and general education, highlighting problems and proposing solutions. Chapter 13 addresses the philosophical and practical questions that have been raised about the transfer function and the community college's role in enhancing student progress toward higher degrees. Finally, chapter 14 offers projections based on current trends in student and faculty demographics, college organization, curriculum, instruction, and student services. (JMC)

Modern Semiconductor Devices for

Integrated Circuits - Chenming Hu 2010

Modern Semiconductor Devices for Integrated Circuits, First Edition introduces readers to the world of modern semiconductor devices with an emphasis on integrated circuit applications. KEY TOPICS: Electrons and Holes in Semiconductors; Motion and Recombination of Electrons and Holes; Device Fabrication Technology; PN and Metal-Semiconductor Junctions; MOS Capacitor; MOS Transistor; MOSFETs in ICs—Scaling, Leakage, and Other Topics; Bipolar Transistor. MARKET: Written by an experienced teacher, researcher, and expert in industry practices, this succinct and forward-looking text is appropriate for anyone interested in semiconductor devices for integrated circuits, and serves as a suitable reference text for practicing engineers.

Computational Electronics - Karl Hess

2013-03-14

Large computational resources are of ever increasing importance for the simulation of semiconductor processes, devices and integrated circuits. The Workshop on Computational Electronics was intended to be a forum for the discussion of the state-of-the-art of device simulation. Three major research areas were covered: conventional simulations, based on the drift-diffusion and the hydrodynamic models;

Monte Carlo methods and other techniques for the solution of the Boltzmann transport equation; and computational approaches to quantum transport which are relevant to novel devices based on quantum interference and resonant tunneling phenomena. Our goal was to bring together researchers from various disciplines that contribute to the advancement of device simulation. These include Computer Science, Electrical Engineering, Applied Physics and Applied Mathematics. The success of this multidisciplinary formula was proven by numerous interactions which took place at the Workshop and during the following three-day Short Course on Computational Electronics. The format of the course, including a number of tutorial lectures, and the large attendance of graduate students, stimulated many discussions and has proven to us once more the importance of cross-fertilization between the different disciplines.

Maternal & Child Nursing Care - Marcia L.

London 2015-03-06

This dynamic, up-to-date text offers an integrated framework and philosophy for teaching the nursing of childbearing families and nursing of children together. Accurate, readable, and concise, *Maternal & Child Nursing Care* supports faster and more efficient learning in briefer, more compressed courses; while helping students develop essential skills for fast-changing healthcare environments. Core themes in this edition include family-centered and community-based care; health promotion (including Healthy People 2020); patient and family education; clinical reasoning; evidence-based practice, and developing cultural competence. This edition adds new Safety Alerts; more coverage of pain as the fifth vital sign; greater focus on care of families where a child is dying; and updated content on assessment, nutrition, communication, and many other key topics. Multiple pedagogical tools help students focus both learning and review, including intuitive Pathophysiology Illustrated visuals; Family Quotes presenting the family's perspective; Learning Outcomes and Critical Concept Review Features; Key Terms, and an online audio glossary.

Microelectronic Circuits - Adel S. Sedra

2020-11-15

Microelectronic Circuits by Sedra and Smith has served generations of electrical and computer engineering students as the best and most widely-used text for this required course.

Respected equally as a textbook and reference, "Sedra/Smith" combines a thorough presentation of fundamentals with an introduction to present-day IC technology. It remains the best text for helping students progress from circuit analysis to circuit design, developing design skills and insights that are essential to successful practice in the field. Significantly revised with the input of two new coauthors, slimmed down, and updated with the latest innovations, Microelectronic Circuits, Eighth Edition, remains the gold standard in providing the most comprehensive, flexible, accurate, and design-oriented treatment of electronic circuits available today.

Solid State Electronic Devices - Ben G. Streetman 2000

"This is the fifth edition of the most widely used introductory book on semiconductor materials, physics, devices and technology. The book was written with two basic goals in mind: 1) develop the basic semiconductor physics concepts to understand current and future devices; 2) provide a sound understanding of current semiconductor devices and technology so that their applications to electronic and optoelectronic circuits and systems can be appreciated."--BOOK JACKET. Title Summary field provided by Blackwell North America, Inc. All Rights Reserved

Applied Petroleum Reservoir Engineering - Benjamin Cole Craft 1991

Basic level textbook covering concepts and practical analytical techniques of reservoir engineering.

Electromagnetic Engineering and Waves - Aziz S. Inan 2014-08-20

"Engineering Electromagnetics and Waves" is designed for upper-division college and university engineering students, for those who wish to learn the subject through self-study, and for practicing engineers who need an up-to-date reference text. The student using this text is assumed to have completed typical lower-division courses in physics and mathematics as well as a first course on electrical engineering circuits." "This book provides engineering

students with a solid grasp of electromagnetic fundamentals and electromagnetic waves by emphasizing physical understanding and practical applications. The topical organization of the text starts with an initial exposure to transmission lines and transients on high-speed distributed circuits, naturally bridging electrical circuits and electromagnetics. Teaching and Learning Experience This program will provide a better teaching and learning experience-for you and your students. It provides: Modern Chapter Organization Emphasis on Physical Understanding Detailed Examples, Selected Application Examples, and Abundant Illustrations Numerous End-of-chapter Problems, Emphasizing Selected Practical Applications Historical Notes on the Great Scientific Pioneers Emphasis on Clarity without Sacrificing Rigor and Completeness Hundreds of Footnotes Providing Physical Insight, Leads for Further Reading, and Discussion of Subtle and Interesting Concepts and Applications"

Introduction to Quantum Mechanics - David J. Griffiths 2019-11-20

Changes and additions to the new edition of this classic textbook include a new chapter on symmetries, new problems and examples, improved explanations, more numerical problems to be worked on a computer, new applications to solid state physics, and consolidated treatment of time-dependent potentials.

Solid State Electronic Devices, Global Edition - Ben Streetman 2015-05-11

For undergraduate electrical engineering students or for practicing engineers and scientists interested in updating their understanding of modern electronics One of the most widely used introductory books on semiconductor materials, physics, devices and technology, Solid State Electronic Devices aims to: 1) develop basic semiconductor physics concepts, so students can better understand current and future devices; and 2) provide a sound understanding of current semiconductor devices and technology, so that their applications to electronic and optoelectronic circuits and systems can be appreciated. Students are brought to a level of understanding that will enable them to read much of the current literature on new devices and

applications. Teaching and Learning Experience
This program will provide a better teaching and learning experience—for you and your students. It will help: Provide a Sound Understanding of Current Semiconductor Devices: With this background, students will be able to see how their applications to electronic and optoelectronic circuits and systems are meaningful. Incorporate the Basics of Semiconductor Materials and Conduction Processes in Solids: Most of the commonly used semiconductor terms and concepts are introduced and related to a broad range of devices. Develop Basic Semiconductor Physics Concepts: With this background, students will be better able to understand current and future devices.

Semiconductor Device Physics and Design -
Umesh Mishra 2007-11-28

Semiconductor Device Physics and Design teaches readers how to approach device design from the point of view of someone who wants to improve devices and can see the opportunity and challenges. It begins with coverage of basic physics concepts, including the physics behind polar heterostructures and strained heterostructures. The book then details the important devices ranging from p-n diodes to bipolar and field effect devices. By relating device design to device performance and then relating device needs to system use the student can see how device design works in the real world.

Embedded Microcomputer Systems: Real Time Interfacing - Jonathan W. Valvano
2011-01-01

Embedded Microcomputer Systems: Real Time Interfacing provides an in-depth discussion of the design of real-time embedded systems using 9S12 microcontrollers. This book covers the hardware aspects of interfacing, advanced software topics (including interrupts), and a systems approach to typical embedded applications. This text stands out from other microcomputer systems books because of its balanced, in-depth treatment of both hardware and software issues important in real time embedded systems design. It features a wealth of detailed case studies that demonstrate basic concepts in the context of actual working examples of systems. It also features a unique

simulation software package on the bound-in CD-ROM (called Test Execute and Simulate, or TExaS, for short) that provides a self-contained software environment for designing, writing, implementing, and testing both the hardware and software components of embedded systems. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

RF Power Amplifiers - Marian K. Kazimierczuk
2014-12-15

This second edition of the highly acclaimed *RF Power Amplifiers* has been thoroughly revised and expanded to reflect the latest challenges associated with power transmitters used in communications systems. With more rigorous treatment of many concepts, the new edition includes a unique combination of class-tested analysis and industry-proven design techniques. Radio frequency (RF) power amplifiers are the fundamental building blocks used in a vast variety of wireless communication circuits, radio and TV broadcasting transmitters, radars, wireless energy transfer, and industrial processes. Through a combination of theory and practice, *RF Power Amplifiers, Second Edition* provides a solid understanding of the key concepts, the principle of operation, synthesis, analysis, and design of RF power amplifiers. This extensive update boasts: up to date end of chapter summaries; review questions and problems; an expansion on key concepts; new examples related to real-world applications illustrating key concepts and brand new chapters covering 'hot topics' such as RF LC oscillators and dynamic power supplies. Carefully edited for superior readability, this work remains an essential reference for research & development staff and design engineers. Senior level undergraduate and graduate electrical engineering students will also find it an invaluable resource with its practical examples & summaries, review questions and end of chapter problems. Key features: • A fully revised solutions manual is now hosted on a companion website alongside new simulations. • Extended treatment of a broad range of topologies of RF power amplifiers. • In-depth treatment of state-of-the-art of modern transmitters and a new chapter on oscillators. • Includes problem-solving

methodology, step-by-step derivations and closed-form design equations with illustrations.

Nise's Control Systems Engineering -

Norman S. Nise 2018

Analog Integrated Circuit Design - Tony

Chan Carusone 2012

The 2nd Edition of Analog Integrated Circuit Design focuses on more coverage about several types of circuits that have increased in importance in the past decade. Furthermore, the text is enhanced with material on CMOS IC device modeling, updated processing layout and expanded coverage to reflect technical innovations. CMOS devices and circuits have more influence in this edition as well as a reduced amount of text on BiCMOS and bipolar information. New chapters include topics on frequency response of analog ICs and basic theory of feedback amplifiers.

Modern Control Systems - Richard C. Dorf
2021

Microelectronics - Donald A. Neamen

2006-05-01

This junior level electronics text provides a foundation for analyzing and designing analog and digital electronics throughout the book. Extensive pedagogical features including numerous design examples, problem solving technique sections, Test Your Understanding questions, and chapter checkpoints lend to this classic text. The author, Don Neamen, has many years experience as an Engineering Educator. His experience shines through each chapter of the book, rich with realistic examples and practical rules of thumb. The Third Edition continues to offer the same hallmark features that made the previous editions such a success. Extensive Pedagogy: A short introduction at the beginning of each chapter links the new chapter to the material presented in previous chapters. The objectives of the chapter are then presented in the Preview section and then are listed in bullet form for easy reference. Test Your Understanding Exercise Problems with provided answers have all been updated. Design Applications are included at the end of chapters. A specific electronic design related to that chapter is presented. The various stages in the design of an

electronic thermometer are explained throughout the text. Specific Design Problems and Examples are highlighted throughout as well.

Structural Steel Design - Abi O. Aghayere

2011-11-21

This is the eBook of the printed book and may not include any media, website access codes, or print supplements that may come packaged with the bound book. This book is a comprehensive, stand alone reference for structural steel design. Giving the audience a thorough introduction to steel structures, this book contains all of the need to know information on practical design considerations in the design of steel buildings. It includes complete coverage of design methods, load combinations, gravity loads, lateral loads and systems in steel buildings, and much more.

Solid State Devices and Technology - Babu V Suresh 2010-09

Solid-State Physics for Electronics - Andre

Moliton 2013-03-01

Describing the fundamental physical properties of materials used in electronics, the thorough coverage of this book will facilitate an understanding of the technological processes used in the fabrication of electronic and photonic devices. The book opens with an introduction to the basic applied physics of simple electronic states and energy levels. Silicon and copper, the building blocks for many electronic devices, are used as examples. Next, more advanced theories are developed to better account for the electronic and optical behavior of ordered materials, such as diamond, and disordered materials, such as amorphous silicon. Finally, the principal quasi-particles (phonons, polarons, excitons, plasmons, and polaritons) that are fundamental to explaining phenomena such as component aging (phonons) and optical performance in terms of yield (excitons) or communication speed (polarons) are discussed.

Materials Science and Engineering

Properties, SI Edition - Charles Gilmore

2014-03-17

MATERIALS SCIENCE AND ENGINEERING PROPERTIES is primarily aimed at mechanical and aerospace engineering students, building on actual science fundamentals before building them into engineering applications. Even though

the book focuses on mechanical properties of materials, it also includes a chapter on materials selection, making it extremely useful to civil engineers as well. The purpose of this textbook is to provide students with a materials science and engineering text that offers a sufficient scientific basis that engineering properties of materials can be understood by students. In addition to the introductory chapters on materials science, there are chapters on mechanical properties, how to make strong solids, mechanical properties of engineering materials, the effects of temperature and time on mechanical properties, electrochemical effects on materials including corrosion, electroprocessing, batteries, and fuel cells, fracture and fatigue, composite materials, material selection, and experimental methods in material science. In addition, there are appendices on the web site that contain the derivations of equations and advanced subjects related to the written textbook, and chapters on electrical, magnetic, and photonic properties of materials. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Physical Foundations of Solid-State Devices - E. Fred Schubert 2022-02-22

It is beneficial for technical personnel working in the field of microelectronics, optoelectronics, and photonics to get a good understanding of the physical foundations of modern semiconductor devices. Questions that technical personnel may ask are: How are electrons propagating in the periodic potential of a crystal lattice? What are the foundations of semiconductor heterostructure devices? How does quantum mechanics relate to semiconductor heterostructures? This book tries to answer questions such as these. The book provides a basis for the understanding of modern semiconductor devices that have dimensions in the nanometer range, that is, comparable to the electron de Broglie wavelength. For such small spatial dimensions, classical physics no longer gives a full description of physical processes. The inclusion of quantum mechanical principles becomes mandatory and provides a useful description of common physical processes in electronic,

optoelectronic, and photonic devices. Chapters 1 to 11 teach the quantum-mechanical principles, including the postulates of quantum mechanics, operators, the uncertainty principle, the Schrödinger equation, non-periodic and periodic potentials, quantum wells, and perturbation theory. Chapters 12 to 20 apply these principles to semiconductor devices and discuss the density of states, semiconductor statistics, carrier concentrations, doping, tunneling, and aspects of heterostructure devices. The 2022 edition is a complete revision of the 2015 edition and also updates the formatting to make it easily viewable with electronic display devices.

Fundamentals of Applied Probability and Random Processes - Oliver Ibe 2014-06-13

The long-awaited revision of *Fundamentals of Applied Probability and Random Processes* expands on the central components that made the first edition a classic. The title is based on the premise that engineers use probability as a modeling tool, and that probability can be applied to the solution of engineering problems. Engineers and students studying probability and random processes also need to analyze data, and thus need some knowledge of statistics. This book is designed to provide students with a thorough grounding in probability and stochastic processes, demonstrate their applicability to real-world problems, and introduce the basics of statistics. The book's clear writing style and homework problems make it ideal for the classroom or for self-study. Demonstrates concepts with more than 100 illustrations, including 2 dozen new drawings Expands readers' understanding of disruptive statistics in a new chapter (chapter 8) Provides new chapter on Introduction to Random Processes with 14 new illustrations and tables explaining key concepts. Includes two chapters devoted to the two branches of statistics, namely descriptive statistics (chapter 8) and inferential (or inductive) statistics (chapter 9).

Psychology of Criminal Behaviour - Adelle Forth 2016-03-01

This Canadian text examines the intersection of criminal behaviour, the theory behind it, and the application of evidence-based practice to its study. It explores the Canadian criminal justice system, Canadian research and Canadian crime. Criminal Behaviour and Psychology is very

accessible to students, and has a focus on empirical research to support key theories and practice. Contemporary themes are also highlighted to give this book a truly Canadian perspective. Criminal Psychology, 2e is intended for use by Canadian students interested in studying the psychology of crime.

Modern Control Systems - Richard C. Dorf 2011
Modern Control Systems, 12e, is ideal for an introductory undergraduate course in control systems for engineering students. Written to be equally useful for all engineering disciplines, this text is organized around the concept of control systems theory as it has been developed in the frequency and time domains. It provides coverage of classical control, employing root locus design, frequency and response design using Bode and Nyquist plots. It also covers modern control methods based on state variable models including pole placement design techniques with full-state feedback controllers and full-state observers. Many examples throughout give students ample opportunity to apply the theory to the design and analysis of control systems. Incorporates computer-aided design and analysis using MATLAB and LabVIEW MathScript.

Electronic Circuit Analysis and Design - Donald A. Neamen 2001

This junior-level electronics text provides a foundation for analyzing and designing analog and digital electronic circuits. Computer analysis and design are recognized as significant factors in electronics throughout the book. The use of computer tools is presented carefully, alongside the important hand analysis and calculations. The author, Don Neamen, has many years experience as an engineering educator and an engineer. His experience shines through each chapter of the book, rich with realistic examples and practical rules of thumb. The book is divided into three parts. Part 1 covers semiconductor devices and basic circuit applications. Part 2 covers more advanced topics in analog electronics, and Part 3 considers digital electronic circuits.

Semiconductor Device Fundamentals - Robert F. Pierret 1996

Special Features *Computer-based exercises and homework problems -- unique to this text and comprising 25% of the total number of problems

-- encourage students to address realistic and challenging problems, experiment with what if scenarios, and easily obtain graphical outputs. Problems are designed to progressively enhance MATLAB-use proficiency, so students need not be familiar with MATLAB at the start of your course. Program scripts that are answers to exercises in the text are available at no charge in electronic form (see Teaching Resources below). *Supplement and Review Mini-Chapters after each of the text's three parts contain an extensive review list of terms, test-like problem sets with answers, and detailed suggestions on supplemental reading to reinforce students' learning and help them prepare for exams. *Read-Only Chapters, strategically placed to provide a change of pace during the course, provide informative, yet enjoyable reading for students. *Measurement Details and Results samples offer students a realistic perspective on the seldom-perfect nature of device characteristics, contrary to the way they are often represented in introductory texts. Content Highlig

Basic Electronics - BL Theraja 2007

Aims of the Book: The foremost and primary aim of the book is to meet the requirements of students pursuing following courses of study: 1. Diploma in Electronics and Communication Engineering (ECE)-3-year course offered by various Indian and foreign polytechnics and technical institutes like city and guilds of London Institute (CGLI). 2. B.E. (Elect. & Comm.)-4-year course offered by various Engineering Colleges. Efforts have been made to cover the papers: Electronics-I & II and Pulse and Digital Circuits. 3. B.Sc. (Elect.)-3-Year vocationalised course recently introduced by Approach.

Solid State Electronic Devices - Ben G. Streetman 2014-03-09

Solid State Electronic Devices is intended for undergraduate electrical engineering students or for practicing engineers and scientists interested in updating their understanding of modern electronics. One of the most widely used introductory books on semiconductor materials, physics, devices and technology, Solid State Electronic Devices aims to: 1) develop basic semiconductor physics concepts, so students can better understand current and

future devices; and 2) provide a sound understanding of current semiconductor devices and technology, so that their applications to electronic and optoelectronic circuits and systems can be appreciated. Students are brought to a level of understanding that will enable them to read much of the current literature on new devices and applications. *Teaching and Learning Experience* This program will provide a better teaching and learning experience-for you and your students. It will help: **Provide a Sound Understanding of Current Semiconductor Devices:** With this background, students will be able to see how their applications to electronic and optoelectronic circuits and systems are meaningful. **Incorporate the Basics of Semiconductor Materials and Conduction Processes in Solids:** Most of the commonly used semiconductor terms and concepts are introduced and related to a broad range of devices. **Develop Basic Semiconductor Physics Concepts:** With this background, students will be better able to understand current and future devices.

Semiconductor Physics and Devices - Donald A. Neamen 2003

This text aims to provide the fundamentals necessary to understand semiconductor device characteristics, operations and limitations.

Quantum mechanics and quantum theory are explored, and this background helps give students a deeper understanding of the essentials of physics and semiconductors.

Approaching Quantum Computing - Marinescu 2008-09

An Introduction to Semiconductor Devices - Donald A. Neamen 2006

An Introduction to Semiconductor Devices by Donald Neamen provides an understanding of the characteristics, operations and limitations of semiconductor devices. In order to provide this understanding, the book brings together the fundamental physics of the semiconductor material and the semiconductor device physics. This new text provides an accessible and modern presentation of material. Quantum mechanic material is minimal, and the most advanced material is designated with an icon. This modern approach means that coverage of the MOS transistor precedes the material on the bipolar transistor, which reflects the dominance of MOS technology in today's world. Excellent pedagogy is present throughout the book in the form of interesting chapters openers, worked examples, a variety of exercises, key terms, and end of chapter problems.