Solid State Electronic Devices Global Edition

Fundamentals of Solid State Engineering
Solid State Electronic Devices
Noise in Solid State Devices and Circuits
Mesoscopic Electronics in Solid State Nanostructures
Solid State Electronic Devices
Solid-State Physics for Electronics
The Physics of Semiconductors
Modern Semiconductor Quantum Physics
Electromigration in ULSI Interconnections
Basic Electronics
Selected Semiconductor Research
BSIM4 and MOSFET Modeling for IC Simulation
Fundamentals of Solid-state Electronics
1896-1946, Programma ter gelegenheid van het gouden kloosterjubileum van zuster Bernardinus op 26 november 1946

Solid State Electronic Devices
Solid State Properties
The Physics and Modeling of Mosfets
Solid State Electronic Devices, Global Edition
Industrial Solid-state Electronics
High-Speed Semiconductor Devices
Microelectronic Circuits
Industrial Solid-state Electronics
Introduction to Solid State Electronics
Solid State Electronic Devices
Fundamentals of Solid-state Electronics
Solid State Physics and Electronics
Solid State Fundamentals for Electricians
SOLID STATE DEVICES
Semiconductor Physics and Devices
Solid State Electronic Devices
Compact Hierarchical Bipolar Transistor Modeling with Hicum
Solid State Physics, Solid State Device And Electronics.
Understanding Solid State Electronics
Solid State Physics

Fundamentals of Solid-State Electronics
Solid-State Electronic Devices
Chemical Sensing with Solid State Devices
INTRODUCTION TO SEMICONDUCTOR MATERIALS AND DEVICES
Physics of Semiconductor Devices
Physical Foundations of Solid-State Devices

SOLIS REBEKAH

Fundamentals of Solid State Engineering S. Chand Publishing Provides a multidisciplinary introduction to quantum mechanics, solid state physics, advanced devices, and fabrication Covers wide range of topics in the same style and in the same notation Most up to date developments in semiconductor physics and nano-engineering Mathematical derivations are carried through in detail with emphasis on clarity Timely application areas such as biophotonics , bioelectronics

Solid State Electronic Devices Springer Science & Business Media This Book Is Designed To Cater The Need Of Students Of B.Sc. (Pass And Hons.) Students Of Various Indian Universities On The Basis Of Model Curriculum Recently Proposed By Cdc Of Ugc.

The Book Comprises 569 Figures, 266 Examples, 233 Problems And 336 Objective Questions, Distributed In 13 Chapters. Each Problem Is Followed By Its Answer.The Inclusion Of A Large Number Of Problems And Review Questions Are Aimed At Evaluating The Degree Of Conceptual Comprehension A Student Has Acquired As A Result Of Studying The Book. The Solved Examples Are Targetted To Illustrate The Theoretical Ideals Described In The Text.Although The Book Is Aimed To Target B.Sc. Students, Yet Chemists, Material Scientists And Electrical Engineers Would Find It Useful Not Only In Persuing Their Studies, But Also In Professional Applications.The Existence Of Sufficient Number Of Objective Questions Are Framed To Help The Student Immensely To Encounter Competitive Examinations Like Net, Slet, Ics And State Civil Services.

Noise in Solid State Devices and Circuits

Springer

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.

Mesoscopic Electronics in Solid State Nanostructures Oxford University Press, USA

A modern and concise treatment of the solid state electronic devices that are fundamental to electronic systems and

information technology is provided in this book. The main devices that comprise semiconductor integrated circuits are covered in a clear manner accessible to the wide range of scientific and engineering disciplines that are impacted by this technology. Catering to a wider audience is becoming increasingly important as the field of electronic materials and devices becomes more interdisciplinary, with applications in biology, chemistry and electro-mechanical devices (to name a few) becoming more prevalent. Updated and state-of-the-art advancements are included along with emerging trends in electronic devices and their applications. In addition, an appendix containing the relevant physical background will be included to assist readers from different disciplines and provide a review for those more familiar with the area. Readers of this book can expect to derive a solid foundation for understanding modern electronic devices and also be prepared for future developments and advancements in this far-reaching area of science and technology.

Solid State Electronic Devices World Scientific 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 beenmade 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 Physics for Electronics Elsevier

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. 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.

The Physics of Semiconductors World Scientific

Modern Semiconductor Quantum Physics has the following constituents: (1) energy band theory: pseudopotential method (empirical and ab initio); density functional theory; quasi-particles; LCAO method; k.p method; spin-orbit splitting; effect mass and Luttinger parameters; strain effects and deformation potentials; temperature effects. (2) Optical properties: absorption and exciton effect; modulation spectroscopy; photo luminescence and photo luminescence excitation; Raman scattering and polaritons; photoionization. (3) Defects and Impurities: effective mass theory and shallow impurity states; deep state cluster method, super cell method, Green's function

method; carrier recombination kinetics; trapping transient measurements; electron spin resonance; electron lattice interaction and lattice relaxation effects; multi-phonon nonradiative recombination; negative U center, DX center and EL2 Defects. (4) Semiconductor surfaces: two dimensional periodicity and surface reconstruction; surface electronic states; photo-electron spectroscopy; LEED, STM and other experimental methods. (5) Low-dimensional structures: Heterojunctions, quantum wells; superlattices, quantum-confined Stark effect and Wannier-Stark ladder effects; resonant tunneling, quantum Hall effect, quantum wires and quantum dots.This book can be used as an advanced textbook on semiconductor physics for graduate students in physics and electrical engineering departments. It is also useful as a research reference for solid state scientists and semiconductor device engineers.

Modern Semiconductor Quantum Physics

Springer Science & Business Media

The present edition is brought up to incorporate the useful suggestions from a number of readers and teachers for the benefit of students.A topic on common-collector configuration is added to the chapter XIII.A new chapter on logic gates is intriduced at the end.Keeping in view the present style of university Question papers,a number of very short,short and long

thoroughly revised and corrected to remove the errors which crept into earlier editions.
Electromigration in ULSI Interconnections
Academic Press
Introduces the physical principles and operational characteristics of high speed semiconductor devices. Intended for use by advanced students as well as professional engineers and scientists involved in semiconductor device research, it includes the most advanced and important topics in high speed semiconductor devices. Initial chapters cover material properties, advanced technologies and novel device building blocks, and serve as the basis for understanding and analyzing devices in subsequent chapters. The following chapters cover a group of closely related devices that includes MOSFETs, MESFETs, heterojunction FETs and permeable-base transistors, hot electron transistors, microwave diodes and photonic devices, among others. Each chapter is self-contained and features a summary section, a discussion of future device trend, and an instructional problem set.
Basic Electronics New Age International
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.--Amazon.
Selected Semiconductor Research Springer Nature
This book on solid state physics has been written with an emphasis on recent developments in quantum many-body physics approaches. It starts by covering the classical theory of solids and electrons and describes how this classical model has failed. The authors then present the quantum mechanical model of electrons in a lattice and they also discuss the theory of conductivity. Extensive reviews on the topic are provided in a compact manner so that any non-specialist can follow from the beginning.The authors cover the system of magnetism in a similar way and various problems in magnetic materials are discussed. The book also discusses the Ising chain, the Heisenberg model, the Kondo effect and superconductivity, amongst other relevant topics.In the final chapter, the authors present some works related to contemporary research topics, such as quantum entanglement in many-body systems and quantum simulations. They also include a short review of some of the possible applications of solid state quantum

information in biological systems.

BSIM4 and MOSFET Modeling for IC Simulation
Prentice Hall
The 4th edition of this highly successful textbook features copious material for a complete upper-level undergraduate or graduate course, guiding readers to the point where they can choose a specialized topic and begin supervised research. The textbook provides an integrated approach beginning from the essential principles of solid-state and semiconductor physics to their use in various classic and modern semiconductor devices for applications in electronics and photonics. The text highlights many practical aspects of semiconductors: alloys, strain, heterostructures, nanostructures, amorphous semiconductors, and noise, which are essential aspects of modern semiconductor research but often omitted in other textbooks. This textbook also covers advanced topics, such as Bragg mirrors, resonators, polarized and magnetic semiconductors, nanowires, quantum dots, multi-junction solar cells, thin film transistors, and transparent conductive oxides. The 4th edition includes many updates and chapters on 2D materials and aspects of topology. The text derives explicit formulas for many results to facilitate a better understanding of the topics. Having evolved from a highly regarded two-semester course on the topic, The Physics of Semiconductors requires

little or no prior knowledge of solid-state physics. More than 2100 references guide the reader to historic and current literature including original papers, review articles and topical books, providing a go-to point of reference for experienced researchers as well.

Fundamentals of Solid-state Electronics World Scientific Publishing Company

Compact Hierarchical Bipolar Transistor Modeling with HICUM will be of great practical benefit to professionals from the process development, modeling and circuit design community who are interested in the application of bipolar transistors, which include the SiGe:C HBTs fabricated with existing cutting-edge process technology. The book begins with an overview on the different device designs of modern bipolar transistors, along with their relevant operating conditions; while the subsequent chapter on transistor theory is subdivided into a review of mostly classical theories, brought into context with modern technology, and a chapter on advanced theory that is required for understanding modern device designs. This book aims to provide a solid basis for the understanding of modern compact models.

1896-1946, Programma ter gelegenheid van het gouden kloosterjubileum van zuster Bernardinus op 26 november 1946

World Scientific

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.

Solid State Electronic Devices John Wiley & Sons

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.

Solid State Properties World Scientific

For devices courses found in electronics technology and electronics engineering technology departments. Written in an engaging, personable style, this guide to solid-state electronic devices explores the latest in semiconductor theory and applications, showing how semiconductors fit within circuits, how circuits and logic gates make decisions, and how to

properly adapt solid-state devices into a circuit design. Designed with the non-technical student in mind, it requires minimal mathematical knowledge, and goes out of its way to explain new ideas and concepts step-by-step, in a clear, succinct, and easily understandable manner.

The Physics and Modeling of Mosfets

Pearson Higher Ed

This Solution Manual, a companion volume of the book, Fundamentals of Solid-State Electronics, provides the solutions to selected problems listed in the book. Most of the solutions are for the selected problems that had been assigned to the engineering undergraduate students who were taking an introductory device core course using this book.This Solution Manual also contains an extensive appendix which illustrates the application of the fundamentals to solutions of state-of-the-art transistor reliability problems which have been taught to advanced undergraduate and graduate students.

Solid State Electronic Devices, Global Edition

World Scientific

This book presents the art of advanced MOSFET modeling for integrated circuit simulation and design. It provides the essential mathematical and physical analyses of all the electrical, mechanical and thermal effects in MOS transistors relevant to the operation of integrated circuits. Particular emphasis is placed on how the BSIM model evolved into the first ever industry

standard SPICE MOSFET model for circuit simulation and CMOS technology development. The discussion covers the theory and methodology of how a MOSFET model, or semiconductor device models in general, can be implemented to be robust and efficient, turning device physics theory into a production-worthy SPICE simulation model. Special attention is paid to MOSFET characterization and model parameter extraction methodologies, making the book particularly useful for those interested or already engaged in work in the areas of semiconductor devices, compact modeling for SPICE simulation, and integrated circuit design.

Industrial Solid-state Electronics Prentice Hall
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.

High-Speed Semiconductor Devices Wiley-Interscience
The second edition of Solid State Electronic Devices serves as a textbook for an introductory course on solid state electronic devices.