Jump into the world of Near Field Communications (NFC), the fast-growing technology that lets devices in close proximity exchange data, using radio signals. With lots of examples, sample code, exercises, and step-by-step projects, this hands-on guide shows you how to build NFC applications for Android, the Arduino microcontroller, and embedded Linux devices. You'll learn how to write apps using the NFC Data Exchange Format (NDEF) in PhoneGap, Arduino, and node.js that help devices read messages from passive NFC tags and exchange data with other NFC-enabled devices. If you know HTML and JavaScript, you're ready to start with NFC. Dig into NFC's architecture, and learn how it's related to RFID. Write sample apps for Android with PhoneGap and its NFC plugin Dive into NDEF: examine existing tag-writer apps and build your own Listen for and filter NDEF messages, using PhoneGap event listeners Build a full Android app to control lights and music in your home Create a hotel registration app with Arduino, from check-in to door lock Write peer-to-peer NFC messages between two Android devices Explore embedded Linux applications, using examples on Raspberry Pi and BeagleBone

This is an edited book covering fundamentals, security theories and protocols, and hardware implementations for cryptography algorithms and security techniques in RFID. It is the first book to comprehensively cover RFID security issues and solutions. Part 1 deals with RFID fundamentals. Part 2 addresses RFID security protocols and techniques. Finally, the book discusses hardware implementation of security algorithms and protocols dedicated to RFID platforms and chips. Provides research on security issues in various wireless communications, recent advances in wireless security, the wireless security model, and future directions in wireless security.

Building on previous editions, this third edition of the Smart Card Handbook offers a completely updated overview of the state of the art in smart card technology. Everything you need to know about smart cards and their applications is covered! Fully revised, this handbook describes the advantages and disadvantages of smart cards when compared with other systems, such as optical cards and magnetic stripe cards and explains the basic technologies to the reader. This book also considers the actual status of appropriate European and international standards. Features include: New sections on: smart card applications (PKCS #15, USIM, Tachosmart), smart card terminals: M.U.S.C.L.E., OCF, MKT, PC/SC, contactless card data transmission with smart cards. Revised and updated chapters on: smart cards in the telecommunications industry (GSM, UMTS, (U)SIM application toolkit, decoding of the files of a GSM card); smart card security (new attacks, new protection methods against attacks). A detailed description of the physical and technical fundamentals of information processing techniques. Explanations of the architecture of smart card operating systems, data transfer to and from the smart card, command and implementation of the security mechanisms and the function of the smart card terminals. Current applications of the technology on mobile telephones, telephone cards, the electronic purse and credit cards. Discussions on future developments of smart cards: USB, MMU on microcontroller, system on card, flash memory and their usage. Practical guidance on the future applications of smart cards, including health insurance cards, e-voting, wireless security, digital signatures and advanced electronic payment methods. "The book is filled with information that students, enthusiasts, managers, experts, developers, researchers and programmers will find useful. The book is well structured and provides a good account of smart card state-of-the-art technology... There is a lot of useful information in this book and as a practicing engineer I found it fascinating, and extremely useful." Review of second edition in Measurement and Control. 'The standard has got a lot higher, if you work with smart cards then buy it! Highly recommended.' Review of second edition in Journal of the Association of C and C++ Programmers. Visit the Smart Card Handbook online at www.wiley.co.uk/commstech/ From basic concepts to research grade material and future directions, the Near Field Communications Handbook provides comprehensive technical coverage of this rapidly emerging field. Walking readers through emerging applications, it offers a glimpse at a future in which near field communication (NFC) technology is fully integrated into daily life. Containing cutting-edge contributions from 50 experts from around the world, the book covers the range of topics related to NFC. It begins with an overview of the basics in digital, biometric, and mobile identity and security. Next, it reviews NFC applications with an all-in-one device and provides detailed guidelines for designing NFC applications with high levels of acceptance in consumer markets. Investigates the role of NFC in the development of pervasive universities and ubiquitous cities Examines privacy-preserving receipt management with NFC phones—proposing a policy-based approach for managing user transaction history Considers the empirically grounded design of a nutrition tracking system for patients with eating disorders Compares the performance of four traditional mobile payment service concepts The handbook includes coverage of the StolPAN Consortium and its contribution to industry progress, as well as the use of RFID/NFC for pervasive serious games. Capturing the state-of-the-art in NFC technology, this reference provides you with ready access to the information required to advance the field. Its well-illustrated and organized structure also makes it suitable as a text for graduate-level and research-oriented courses dealing with NFC. This book contains a selection of articles from The 2015 World Conference on Information Systems and Technologies (WorldCIST'15), held between the 1st and 3rd of April in Funchal, Madeira, Portugal, a global forum for researchers and practitioners to present original research and innovations, current trends, and personal experiences and challenges. The conference focuses on Technologies research, technological development and applications. The main topics covered are: Information and Knowledge Management; Organizational Models and Information Systems; Intelligent and Decision Support Systems; Big Data Analytics and Applications; Software Systems, Architectures, Applications and Tools; Multimedia Systems and Applications; Computer Networks, Mobility and Pervasive Systems; Human-Computer Interaction; Health Informatics; Information Technologies in Education; Information Technologies in Radio communications. The Handbook of Thin Film Deposition Techniques: Principles, Methods, Equipment and Applications, Second Edition explores the technology behind the spectacular growth in the silicon semiconductor industry and the continued trend in miniaturization over the last 20 years. This growth has been fueled in large part by improved thin film deposition techniques and the development of highly specialized equipment to enable this deposition. This second edition explains the growth of sophisticated, automatic tools capable of measuring thickness and spacing of submicron dimensions. The book covers PVD, laser and E-beam assisted deposition, MBE, and ion beam methods to bring together all of the physical vapor deposition techniques. The book also includes coverage of chemical mechanical polishing that helps attain the flatness that is required by modern lithography methods and new materials used for interconnect dielectric materials, specifically organic polyimide materials. RFID HandbookFundamentals and Applications in Contactless Smart Cards, Radio Frequency Identification and Near-Field CommunicationJohn Wiley & Sons "...a must-read text that provides a historical lens to see how ubicomp has matured into a multidisciplinary endeavor. It will be an essential reference to researchers and those who want to learn more about this evolving field." -From the Foreword, Professor Gregory D. Abowd, Georgia Institute of Technology First introduced two decades ago, the term ubiquitous computing is now part of the common vernacular. Ubicomp, as it is commonly called, has grown not just widely but broadly so as to encompass a wealth of concepts and technology that serves any number of purposes across all of human endeavor. While such growth is positive, the newest generation of ubicomp practitioners and researchers, isolated to specific tasks, are in danger of losing their sense of history and the broader perspective that has been so essential to the field's creativity and brilliance. Under the guidance of John Krumm, an original ubicomp pioneer, Ubiquitous Computing Fundamentals brings together eleven ubiquitous computing trailblazers
who each report on his or her area of expertise. Starting with a historical introduction, the book moves on to summarize a number of self-contained topics. Taking a decidedly human perspective, the book includes discussion on how to observe people in their natural environments and evaluate the critical points where ubiquitous computing technologies can improve their lives. Among a range of topics this book examines: How to build an infrastructure that supports ubiquitous computing applications Privacy protection in systems that connect personal devices and personal information Moving from the graphical to the ubiquitous computing user interface Techniques that are revolutionizing the way we determine a person’s location and understand other sensor measurements While we needn’t become expert in every sub-discipline of ubicomp, it is necessary that we appreciate all the perspectives that make up the field and understand how our work can influence and be influenced by those perspectives. This is important, if we are to encourage future generations to be as successfully innovative as the field’s originators.

This 2006 textbook discusses the fundamentals and applications of statistical thermodynamics for beginning graduate students in the physical and engineering sciences. Building on the prototypical Maxwell–Boltzmann method and maintaining a step-by-step development of the subject, this book assumes the reader has no previous exposure to statistics, quantum mechanics or spectroscopy. The book begins with the essentials of statistical thermodynamics, pauses to recover needed knowledge from quantum mechanics and spectroscopy, and then moves on to applications involving ideal gases, the solid state and radiation. A full introduction to kinetic theory is provided, including its applications to transport phenomena and chemical kinetics. A highlight of the textbook is its discussion of modern applications, such as laser-based diagnostics. The book concludes with a thorough presentation of the ensemble method, featuring its use for real gases. Numerous examples and prompted homework problems enrich the text.

A comprehensive review of position location technology — from fundamental theory to advanced practical applications Positioning systems and location technologies have become significant components of modern life, used in a multitude of areas such as law enforcement and security, road safety and navigation, personnel and object tracking, and many more. Position location systems have greatly reduced society's dependence on advanced resources (such as GPS) or greatly increased the available resources for researchers and students in this important field. The Handbook of Position Location: Theory, Practice, and Advances fills this gap, providing a comprehensive overview of both fundamental and cutting-edge techniques and introducing practical methods of advanced localization and positioning. Now in its second edition, this handbook offers broad and in-depth coverage of essential topics including Time of Arrival (TOA) and Direction of Arrival (DOA) based positioning, Received Signal Strength (RSS) based positioning, network localization, and others. Topics such as GPS, autonomous vehicle applications, and visible light localization are examined, while major revisions to chapters such as body area network positioning and digital signal processing for GNSS receivers reflect current and emerging advances in the field. This new edition: Presents new and revised chapters on topics including localization error evaluation, Kalman filtering, positioning in inhomogeneous media, and Global Positioning (GPS) in harsh environments Offers MATLAB examples to demonstrate fundamental algorithms for positioning and provides online access to all MATLAB code Allows practicing engineers and graduate students to keep pace with contemporary research and new technologies Contains numerous application-based examples including the application of localization to drone navigation, capsule endoscopy localization, and satellite navigation and localization Reviews unique applications of position location systems, including GNSS and RFID-based localization systems The Handbook of Position Location: Theory, Practice, and Advances is valuable resource for practicing engineers and researchers seeking to keep pace with current developments in the field, graduate students in need of clear and accurate course material, and university instructors teaching the fundamentals of wireless localization.

Digital Signal Processing, Second Edition enables electrical engineers and technicians in the fields of biomedical, computer, and electronic engineering to master the essential fundamentals of DSP principles and practice. Many instructive worked examples are used to illustrate the material, and the use of mathematics is minimized for easier grasp of concepts. As such, this title is also useful to undergraduates in electrical engineering, and as a reference for science students and practicing engineers. The book goes beyond DSP theory, to show implementation of algorithms in hardware and software. Additional topics covered include adaptive filtering with noise reduction and echo cancellations, speech compression, signal sampling, digital filter realizations, filter design, multimedia applications, over-sampling, etc. More advanced topics are also covered, such as adaptive filters, speech compression such as PCM, u-law, ADPCM, and multi-rate DSP, and over-sampling ADC. New to this edition: MATLAB projects dealing with practical applications added throughout the book New chapter (chapter 13) covering sub-band coding and wavelet transforms, methods that have become popular in the DSP field New applications included in many chapters, including applications of DFT to seismic signals, electrocardiography data, and vibration signals All real-time C programs revised for the TMS320C6713 DSK Covers DSP principles with emphasis on communications and control applications Chapter objectives, worked examples, and end-of-chapter exercises aid the reader in grasping key concepts and solving related problems Website with MATLAB programs for simulation and C programs for real-time DSP

For second and third year introductory communication systems courses for undergraduates, or an introductory graduate course. This revision of Couch's authoritative text provides the latest treatment of digital communication systems. The author balances coverage of both digital and analog communication systems, with an emphasis on design. Students will gain a working knowledge of both classical mathematical and personal computer methods to analyze, design, and simulate modern communication systems. MATLAB is integrated throughout. Many companies have asked suppliers to begin using RFID (radio frequency identification) tags by 2006 RFID allows pallets and products to be scanned at a greater distance and with less effort than barcode scanning, offering superior supply-chain management efficiencies This unique plain-English resource explains RFID and shows CIOs, warehouse managers, and supply-chain managers how to implement RFID tagging in products and deploy RFID scanning at a warehouse or distribution center Covers the business case for RFID, pilot programs, timelines and strategies for site assessments and deployments, testing guidelines, privacy and regulatory issues, and more

This book provides a fundamental and practical introduction to radio frequency and microwave engineering and physical aspects of wireless communication. In this book, the author addresses a wide range of radio-frequency and microwave topics, with emphasis on physical aspects including EM and voltage waves, transmission lines, passive circuits, antennas, radio wave propagation. Up-to-date RF design tools like RF circuit simulation, EM simulation and computerized Smith charts, are used in various examples to demonstrate how these methods can be applied effectively in RF engineering practice. Design rules and working examples illustrate the theoretical parts. The examples are close to real world problems, so the reader can directly transfer the methods within the context of their own work. At the end of each chapter a list of problems is given inorder to deepen the reader’s understanding of the chaptermaterial and practice the new competences. They are available on the author’s website. Key Features: Presents a wide range of RF topics with emphasis on physical aspects e.g. EM and voltage waves, transmission lines, passive circuits, antennas Uses various examples of modern RF tools that show how themethods can be applied productively in RF engineering practice Incorporates various design examples using circuit and electromagnetic (EM) simulation software Discusses the propagation of waves: their representation, their effects, and their utilization in passive circuits and antennas. Provides a list of problems at the end of each chapter Includes an accompanying website containing solutions to the problems (htp://www.fh-dortmund.de/gustau_rf_textbook) This will be an invaluable textbook for bachelor and masters students on electrical engineering courses (microwave engineering, basic circuit theory and electromagnetic fields, wireless communications). Early-stage RF practitioners, engineers (e.g. application engineer) working in this area will also find this book of interest.
Expert contributors drawn from the ranks of academia and industry have authored chapters in such areas as third-generation wireless, wireless sensor networks, RF power amplifiers, spread spectrum modulation, signal propagation, antennas, and other key subjects that engineers working in RF and wireless need to be familiar with. This is far more than just a tutorial or reference guide—it is a "guided tour" through the world of cutting-edge RF and wireless design, combining theory, applications, and philosophies behind the RF/wireless design process. The multiple and sometimes overlapping chapters reiterate and emphasize the fundamentals of different types of wireless applications. Here are just a few benefits that readers will gain from reading this book: * A refresher and update of wireless principles and techniques. * Information about the latest (and forthcoming) RF and wireless circuits, products and systems. * Guidelines, approaches, and techniques to RF/wireless design. * Examples of typical applications with an emphasis on real-world situations including existing and forthcoming new components and integrated circuits. * Coverage of new and emerging wireless topics heretofore not widely covered in print (e.g. UWB, RFID, IR, etc.) * A comprehensive survey of current RF and wireless engineering practice * Heavy emphasis on practical applications and design guidelines * Multiple contributors assure a wide range of perspectives and avoids individual bias

RFID is an increasingly pervasive tool that is now used in a wide range of fields. It is employed to substantiate adherence to food preservation and safety standards, combat the circulation of counterfeit pharmaceuticals, and verify authenticity and history of critical parts used in aircraft and other machinery—and these are just a few of its uses. Goes beyond deployment, focusing on exactly how RFID actually works RFID Design Fundamentals and Applications systematically explores the fundamental principles involved in the design and characterization of RFID technologies. The RFID market is exploding. With new and enhanced applications becoming increasingly integral to government and industrial chain supply and logistics around the globe, professionals must be proficient in the evaluation and deployment of these systems. Although manufacturers provide complete and extensive documentation of each individual RFID component, it can be difficult to synthesize and apply this complex information—and users often must consult and integrate data from several producers for different components. This book covers topics including: Types of antennas used in transponders Components of the transponder, memory structure and antenna conceptual framework, and the structure of modulation Organization and characteristics of commercial transponders Communication links Modes of operation for transponders operating at different frequencies Principles of arbitration and anti-collision Commands used by transponders This powerful reference helps to resolve this dilemma by compiling a systematic overview of the different parts that make up the whole RFID system, helping the reader develop a clear and understanding of its mechanisms and how the technology actually works. Most books on RFID focus on commercial use and deployment of the technology, but this volume takes a different and extremely useful approach. Directed toward both professionals and students in electronics, telecommunications, and new technologies, it fills the informational void left by other books, illustrating specific examples of available semiconductors and integrated circuits to clearly explain how RFID systems are configured, how they work, and how different system components interact with each other.

A comprehensive and timely reference on RFID technology covering the fundamental principles and techniques, and looking at current and potential applications. RFID is used in all areas of automatic data capture allowing contactless identification of objects using RF, from ticketing to industrial automation. This book brings together the disparate information on this fast-growing technology and features include: * Introduction to the essential operating criteria and physical principles of RFID systems * The latest information in the standards requirements, manufacture, and applications of contactless smart cards * Coverage of the practical challenges to be considered in real-world applications of RFID from public transport to electronic immobilisation * Description of coding and modulation, the differentiation features of RFID systems and international standards * Examination of radio frequency ranges used and international licensing controls including the US-FCC radio regulation standards. ADC professionals will profit from the detailed overview of current technologies, the legal guidelines and the breadth of applications examples combined within this single resource. End users of RFID products and electrical engineering postgraduates will appreciate this introduction to the basic functionality and the physical principles underlying this new technology.

The authors of this book clearly explain the potential advantages of using Radio Frequency Identification (RFID) technology in a modern manufacturing and supply chain context. Areas of emphasis include integration of RFID data into legacy IT architectures, RFID-MES-ERP integration, and cost-benefit considerations. The presentation is not restricted to intra-company production planning, but also emphasizes the benefits of inter-company collaboration. Six case studies based on SAP's ERP systems and MPD's MES solution show how to successfully implement cross-company supply chain integration using RFID technology. 

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Welcome to the proceedings of PERVASIVE 2004, the 2 International Conference on Pervasive Computing and the premier forum for the presentation and appraisal of the most recent and most advanced research results in all - unadal and applied areas of pervasive and ubiquitous computing. Consi- ring the half-life period of technologies and knowledge this community is facing, PERVASIVE is one of the most vibrant, dynamic, and evolutionary among the computer-science-related symposia and conferences. The research challenges, e!orts, and contributions in pervasive computing have experienced a breathtaking acceleration over the past couple of years, mostly due to technological progress, growth, and a shift of paradigms in the computer science in general. As for technological advances, a vast manifold of tiny, embedded, and autonomous computing and communication systems have steered to create and populate a pervasive and ubiquitous computing landscape, characterized by paradigms like autonomy, context-awareness, spontaneous - teration, seamless integration, self-organization, ad hoc networking, invisible services, smart artifacts, and everywhere interfaces. The maturing of wireless networking, miniaturized information-processing possibilities induced by novel microprocessor technologies, low-power storage systems, smart materials, and technologies for motors, controllers, sensors, and actuators envision a future computing scenario in which almost every object in our everyday environment will be equipped with embedded processors, wireless communication facilities, and embedded software to perceive, perform, and control a multitude of tasks and functions. This book constitutes the refereed proceedings of the 10th International Conference on Computers Helping People with Special Needs, ICCHP 2006, held in Linz, Austria, in July 2006. The 193 revised contributions presented were carefully reviewed and selected for inclusion in the book. The papers evaluate how various fields in computer science can contribute to helping people with various kinds of disabilities and impairment. The escalating demand for ubiquitous computing along with the complementary and flexible natures of Radio Frequency Identification (RFID) and Wireless Sensor Networks (WSNs) have sparked an increase in the integration of these two dynamic technologies. Although a variety of applications can be observed under development and in practical use, there...
to radio communications for engineers who need insight into how tags and readers work. New to this edition: • Examples of near-metal antenna techniques • Discussion of the wakeup challenge for battery-assisted tags, with a BAT architecture example • Latest development of protocols: EPC Gen 1.2.0 • Update 18000-6 discussion with battery-assisted tags, sensor tags, Manchester tags and wakeup provisions Named a 2012 Notable Computer Book for Computer Systems Organization by Computing Reviews The only book to give an understanding of radio communications, the underlying technology for radio frequency identification (RFID) Praised for its readability and clarity, it balances breadth and depth of coverage New edition includes latest developments in chip technology, antennas and protocols This book describes the fundamentals and principles of energy harvesting and provides the necessary theory and background to develop energy harvesting power supplies. It explains the overall system design and gives quantitative assumptions on environmental energy. It explains different system blocks for an energy harvesting power supply and the trade-offs. The text covers in detail different energy transducer technologies such as piezoelectric, electrodynamic, and thermoelectric generators and solar cells from the material to the component level and explains the appropriate power management circuits required in these systems. Furthermore, it describes and compares storage elements such as secondary batteries and supercapacitors to select the most appropriate one for the application. Besides power supplies that use ambient energy, the book presents focusing systems that use electromagnetic fields in the radio frequency range. Finally, it discusses different application fields and presents examples of self-powered electronic systems to illustrate the content of the preceding chapters.

"This book is the best source for the most current, relevant, cutting edge research in the field of industrial informatics focusing on different methodologies of information technologies to enhance industrial fabrication, intelligence, and manufacturing processes"–Provided by publisher.

This book provides an introduction to RFID technology. It describes and addresses the following: How RFID works, how it is and can be used in current and future applications. The History of RFID technology, the current state of practice and where RFID is expected to be taken in the future. The role of middleware software to route data between the RFID network and the information technology systems within an organization. Commercial and government use of RFID technology with an emphasis on a wide range of applications including retail and consumer packaging, transportation and distribution of products, industrial and manufacturing operations, security and access control. Industry standards and the regulatory compliance environment and finally, the privacy issues faced by the public and industry regarding the deployment of RFID technology.

This is the third revised edition of the established and trusted RFID Handbook; the most comprehensive introduction to radio frequency identification (RFID) available. This essential new edition contains information on electronic product code (EPC) and the EPC global network, and explains near-field communication (NFC) in depth. It includes revisions on chapters devoted to the physical principles of RFID systems and microprocessors, and supplies up-to-date details on relevant standards and regulations. Taking into account critical modern concerns, this handbook provides the latest information on: the use of RFID in ticketing and electronic passports; the security of RFID systems, explaining attacks on RFID systems and other security matters, such as transponder emulation and cloning, defence using cryptographic methods, and electronic article surveillance; frequency ranges and radio licensing regulations. The text explores schematic circuits of simple transponders and readers, and includes new material on active and passive transponders, ISO/IEC 18000 family, ISO/IEC 15691 and 15692. It also describes the technical limits of RFID systems. A unique resource offering a complete overview of the large and varied world of RFID, Klaus Finkenzeller's volume is useful for end-users of the technology as well as practitioners in auto ID and IT designers of RFID products. Computer and electronics engineers in security system development, microchip designers, and materials handling specialists benefit from this book, as do automation, industrial and transport engineers. Clear and thorough explanations also make this an excellent introduction to the topic for graduate level students in electronics and industrial engineering design. Klaus Finkenzeller was awarded the Fraunhofer-Smart Card Prize 2008 for the second edition of this publication, which was celebrated for being an outstanding contribution to the smart card field.

This volume contains the proceedings of the Internet of Things (IOT) Conference 2008, the ?rst international conference of its kind. The conference took place in Zurich, Switzerland, March 26–28, 2008. The term 'Internet of Things' has come to describe a number of technologies and research disciplines that enable the Internet to reach out into the real world of physical objects. Technologies such as RFID, short-range wireless communications, real-time localization, and sensor networks are becoming increasingly common, bringing the 'Internet of Things' into industrial, commercial, and domestic use. IOT 2008 brought together leading researchers and practitioners, from both academia and industry, to facilitate the sharing of ideas, applications, and research results. IOT 2008 attracted 92 high-quality submissions, from which the technical program committee accepted 23 papers, resulting in a competitive 25% acceptance rate. In total, there were over 250 individual authors from 23 countries, representing both academic and industrial organizations. Papers were selected solely on the quality of their blind peer reviews. We were fortunate to draw on the combined experience of our 59 program committee members, coming from the most prestigious universities and research labs in Europe, North America, Asia, and Australia. Program committee members were aided by no less than 63 external reviewers in this rigorous process, in which each committee member wrote about 6 reviews. The total of 336 entered reviews resulted in an average of 3.7 reviews per paper, or slightly more than 1000 words of feedback for each paper submitted.

Maintaining compatibility among all affected network and application interfaces of modern enterprise systems can quickly become costly and overwhelming. This handbook presents the knowledge and practical experience of a global group of experts from varying disciplines to help you plan and implement enterprise integration projects that respond to business needs. The job of any reservoir engineer is to maximize production from a field to obtain the best economic return. To do this, the engineer must study the behavior and characteristics of a petroleum reservoir to determine the course of future development and production that will maximize the profit. Fluid flow, rock properties, water and gas coning, and relative permeability are only a few of the concepts that a reservoir engineer must understand to do the job right, and some of the tools of the trade are water influx calculations, lab tests of reservoir fluids, and oil and gas performance calculations. Two new chapters have been added to the first edition to make this book a complete resource for students and professionals in the petroleum industry: Principles of Waterflooding, Vapor-Liquid Phase Equilibria.

Decision support systems have experienced a marked increase in attention and importance over the past 25 years. The aim of this book is to survey the decision support system (DSS) field – covering both developed territory and emergent frontiers. It will give the reader a clear understanding of fundamental DSS concepts, methods, technologies, trends, and issues. It will serve as...
a basic reference work for DSS research, practice, and instruction. To achieve these goals, the book has been designed according to a ten-part structure, divided in two volumes with chapters authored by well-known, well-versed scholars and practitioners from the DSS community.

The definitive guide to understanding RFID technology's benefits and implementation.

Radio Frequency Identification (RFID) tagging is now used by the department of defense and many of the world's largest retailers including Wal-Mart. As RFID continues to infiltrate industries worldwide, organizations must harness a clear understanding of this technology in order to maximize its potential and protect against the potential risks it poses. The RFID Handbook provides an overview of RFID technology, its associated security and privacy risks, and recommended practices that will enable organizations to realize productivity improvements while also protecting sensitive information and the privacy of individuals. Expert contributors present a host of applications including RFID enabled automated receiving, triage with RFID for massive incidents, RFID and NFC in relation to mobile phones, and RFID technologies for communication robots and a privacy preserving video surveillance system. The unprecedented coverage also includes detailed descriptions of adaptive splitting protocols as well as tree-based and probabilistic anti-collision protocols. Drawing on its distinguished editors and world-renowned contributors, this one-of-a-kind handbook serves as the ultimate reference on RFID, from basic research concepts to future applications.

Digital technologies are spreading rapidly, but digital dividends—the broader benefits of faster growth, more jobs, and better services—are not. If more than 40 percent of adults in East Africa pay their utility bills using a mobile phone, why can’t others around the world do the same? If 8 million entrepreneurs in China—one third of them women—can use an e-commerce platform to export goods to 120 countries, why can’t entrepreneurs elsewhere achieve the same global reach? And if India can provide unique digital identification to 1 billion people in five years, and thereby reduce corruption by billions of dollars, why can’t other countries replicate its success? Indeed, what’s holding back countries from realizing the profound and transformational effects that digital technologies are supposed to deliver? Two main reasons. First, nearly 60 percent of the world’s population are still offline and can’t participate in the digital economy in any meaningful way. Second, and more important, the benefits of digital technologies can be offset by growing risks. Startups can disrupt incumbents, but not when vested interests and regulatory uncertainty obstruct competition and the entry of new firms. Employment opportunities may be greater, but not when the labor market is polarized. The internet can be a platform for universal empowerment, but not when it becomes a tool for state control and elite capture. The World Development Report 2016 shows that while the digital revolution has forged ahead, its 'analog complements'—the regulations that promote entry and competition, the skills that enable workers to access and then leverage the new economy, and the institutions that are accountable to citizens—have not kept pace. And when these analog complements to digital investments are absent, the development impact can be disappointing. What, then, should countries do? They should formulate digital development strategies that are much broader than current information and communication technology (ICT) strategies. They should create a policy and institutional environment for technology that fosters the greatest benefits. In short, they need to build a strong analog foundation to deliver digital dividends to everyone, everywhere.

Handbook of Chemical Vapor Deposition: Principles, Technology and Applications provides information pertinent to the fundamental aspects of chemical vapor deposition. This book discusses the applications of chemical vapor deposition, which is a relatively flexible technology that can accommodate many variations. Organized into 12 chapters, this book begins with an overview of the theoretical examination of the chemical vapor deposition process. This text then describes the major chemical reactions and reviews the chemical vapor deposition systems and equipment used in research and production. Other chapters consider the materials deposited by chemical vapor deposition. This book discusses as well the potential applications of chemical vapor deposition in semiconductors and electronics. The final chapter deals with ion implantation as a major process in the fabrication of semiconductors. This book is a valuable resource for scientists, engineers, and students. Production and marketing managers and suppliers of equipment, materials, and services will also find this book useful.