

## Carrier Ccn Interface

*This book is intended to provide a step-by-step guide to all design aspects and tradeoffs from theory to application for fiber-optics transceiver electronics. Presenting a compendium of information in a structured way, this book enables the engineer to develop a methodical design approach, a deep understanding of specifications parameters and the reasons behind them, as well as their effects and consequences on system performance, which are essential for proper component design. Further, a fundamental understanding of RF, digital circuit design, and linear and nonlinear phenomena is important in order to achieve the desired performance levels. Becoming familiar with solid-state devices and passives used to build optical receivers and transmitters is also important so one can effectively overcome design limitations. The book is organized into six main sections covering the following subjects: a top level overview; optics, semiconductors, and passives; RF concepts; an introduction to CATV modems and transmitters; digital transceivers' performance, evaluation, and concepts; and integration and testing. Copublished with Wiley-Interscience.*

*Delivers information on communication networks, and highlights their important issues, challenges, trends, and applications. Highlights development trends and potential future directions of Information Hiding Introduces a new classification and taxonomy for modern data hiding techniques Presents different types of network steganography mechanisms Introduces several example applications of information hiding in communication networks including some recent covert communication techniques in popular Internet services*

*The new edition of a bestseller, this book is one of the leading educational resources for energy manager or energy professional as well as new people enter the field of energy management and energy engineering. It is the most widely used college and university textbook, as well as one of the most widely used books for professional development training. New topics include energy auditing, energy bills, life cycle costing, electrical distribution systems, boilers, steam distribution systems, control systems and computers, energy systems maintenance, insulation, compressed air, renewable energy sources and water management, distributed generation, and creating green buildings.*

*This book is an in-depth, systematic and structured technical reference on 3GPP's LTE-Advanced (Releases 10 and 11), covering theory, technology and implementation, written by an author who has been involved in the inception and development of these technologies for over 20 years. The book not only describes the operation of individual components, but also shows how they fit into the overall system and operate from a systems perspective. Uniquely, this book gives in-depth information on upper protocol layers, implementation and deployment issues, and services, making it suitable for engineers who are implementing the technology into future products and services. Reflecting the author's 23 plus years of experience in signal processing and communication system design, this book is ideal for professional engineers, researchers, and graduate students working in cellular communication systems, radio air-interface technologies, cellular communications protocols, advanced radio access technologies for beyond 4G systems, and broadband cellular standards. An end-to-end description of LTE/LTE-Advanced technologies using a top-down systems approach, providing an in-depth understanding of how the overall system works Detailed algorithmic descriptions of the individual components' operation and inter-connection Strong emphasis on implementation and deployment scenarios, making this a very practical book An in-depth coverage of theoretical and practical aspects of LTE Releases 10 and 11 Clear and concise descriptions of the underlying principles and technical concepts to provide a better understanding of the operation of the system's components Covers all essential system functionalities, features, and their inter-connections based on a clear protocol structure, including detailed signal flow graphs and block diagrams Includes methodologies and results related to link-level and system-level evaluations of LTE-Advanced Provides understanding and insight into the advanced underlying technologies in LTE-Advanced up to and including Release 11: multi-antenna signal processing, OFDM, carrier aggregation, coordinated multi-point transmission and reception, eICIC, multi-radio coexistence, E-MBMS, positioning methods, real-time and non-real-time wireless multimedia applications*

*LTE-Advanced*

*Concepts, Principles, and Practices*

*Design and Installation*

*Characterization of Nanoencapsulated Food Ingredients*

*Consulting-specifying Engineer*

*A Practical Systems Approach to Understanding 3GPP LTE Releases 10 and 11 Radio Access Technologies*

**Fully updated, revised, and expanded, this second edition of Modern Cable Television Technology addresses the significant changes undergone by cable since 1999—including, most notably, its continued transformation from a system for delivery of television to a scalable-bandwidth platform for a broad range of communication services. It provides in-depth coverage of high speed data transmission, home networking, IP-based voice, optical dense wavelength division multiplexing, new video compression techniques, integrated voice/video/data transport, and much more. Intended as a day-to-day reference for cable engineers, this book illuminates all the technologies involved in building and maintaining a cable system. But it's also a great study guide for candidates for SCTE certification, and its careful explanations will benefit any technician whose work involves connecting to a cable system or building products that consume cable services. \*Written by four of the most highly-esteemed cable engineers in the industry with a wealth of experience in cable, consumer electronics, and telecommunications. \*All new material on digital technologies, new practices for delivering high speed data, home networking, IP-based voice technology, optical dense wavelength division multiplexing (DWDM), new video compression techniques, and integrated voice/video/data transport. \*Covers the latest on emerging digital standards for voice, data, video, and multimedia. \*Presents distribution systems, from drops through fiber optics, an covers everything from basic principles to network architectures.**

**This Dictionary covers information and communication technology (ICT), including hardware and software; information networks, including the Internet and the World Wide Web; automatic control; and ICT-related computer-aided fields. The Dictionary also lists abbreviated names of relevant organizations, conferences, symposia and workshops. This reference is important for all practitioners and users in the areas mentioned above, and those who consult or write technical material. This Second Edition contains 10,000 new**

**for a total of 100,000 entries.**  
**As the demand for higher bandwidth has lead to the development of increasingly complex wireless technologies, an understanding of both wireless networking technologies and radio frequency (RF) principles is essential for implementing high performance and cost effective wireless networks. Wireless Networking Technology clearly explains the latest wireless technologies, covering all scales of wireless networking from personal (PAN) through local area (LAN) to metropolitan (MAN). Building on a comprehensive review of the underlying technologies, this practical guide contains 'how to' implementation information, including a case study that looks at the specific requirements for a voice over wireless LAN application. This invaluable resource will give engineers and managers all the necessary knowledge to design, implement and operate high performance wireless networks. · Explore in detail wireless networking technologies and understand the concepts behind RF propagation. · Gain the knowledge and skills required to install, use and troubleshoot wireless networks. · Learn how to address the problems involved in implementing a wireless network, including the impact of signal propagation on operating range, equipment inter-operability problems and many more. · Maximise the efficiency and security of your wireless network.**

**This new International Version includes all material covered in the standard eighth edition, but numerical data and calculations are expressed in Systeme International (SI) units. Completely revised, this latest edition includes new chapters on electrical systems; motors and drives; commissioning; and human behavior and facility energy management. Also updated are chapters on lighting, HVAC systems, web-based building automation, control systems, green buildings, and greenhouse gas management. Written by respected professionals, this book examines objectives of energy management and illustrates techniques proven effective for achieving results.**

**Advanced Wireless Communications and Internet**

**Information Technology for Energy Managers**

**Video, Voice, and Data Communications**

**Information Hiding in Communication Networks**

**Acronyms, Initialisms & Abbreviations Dictionary**

**Handbook of Web Based Energy Information and Control Systems**

This book presents a review of the latest advances in speech and video compression, computer networking protocols, the assessment and monitoring of VoIP quality, and next generation network architectures for multimedia services. The book also concludes with three case studies, each presenting easy-to-follow step-by-step instructions together with challenging hands-on exercises. Features: provides illustrative worked examples and end-of-chapter problems; examines speech and video compression techniques, together with speech and video compression standards; describes the media transport protocols RTP and RTCP, as well as VoIP signalling protocols SIP and SDP; discusses the concepts of VoIP quality of service and quality of experience; reviews next-generation networks based on the IP multimedia subsystem and mobile VoIP; presents case studies on building a VoIP system based on Open IMS and Android mobile, and analysing VoIP protocols and quality.

Praise for the first edition: " This excellent text will be useful to everyssystem engineer (SE) regardless of the domain. It covers ALL relevant SE material and does so in a very clear, methodical,fashion. The breadth and depth of the author's presentation oISE principles and practices is outstanding. " — Philip Allen This textbook presents a comprehensive, step-by-step guide toSystem Engineering analysis, design, and development via anintegrated set of concepts, principles, practices, andmethodologies. The methods presented in this text apply to any typeof human system — small, medium, and large organizational systemsand system development projects delivering engineered systems oversome multiple business sectors such as medical,transportation, financial, educational, governmental, aerospace,airdefense, utilities, political, and charity, among others. Provides a common focal point for " bridgingthe gap " between and unifying System Users, System Acquirers,multi-discipline System Engineering, and Project, Functional, andExecutive Management education, knowledge, and decision-making fordeveloping systems, products, or services Each chapter provides definitions of key terms,guiding principles, examples, author ' s notes, real-worldexamples, and exercises, which highlight and reinforce key SE&Dconcepts and practices Addresses concepts employed in Model-BasedSystems Engineering (MBSE), Model-Driven Design (MDD), UnifiedModeling Language (UMLTM) / Systems Modeling Language(SysMLTM), and Agile/Spiral/IV-Model Development such asuser needs, stories, and use cases analysis; specification/development; system architecture development; User-Centric SystemDesign (UCSD); interface definition & control; systemsintegration & test; and Verification & Validation(V&V) Highlights/introduces a new 21st Century SystemsEngineering & Development (SE&D) paradigm that is easy tounderstand and implement. Provides practices that are critical stagingpoints for technical decision making such as Technical Strategy/Development; Life Cycle requirements; Phases, Modes, & States;SE Process; Requirements Derivation; System Architecture/Development, User-Centric System Design (UCSD); EngineeringStandards, Coordinate Systems, and Conventions; et al. Thoroughly illustrated, with end-of-chapter exercises andnumerous case studies and examples, Systems Engineering/Analysis, Design, and Development, Second Edition is a primarytextbook for multi-discipline, engineering, system analysis, andproject management undergraduate/graduate level students and available reference for professionals.

Telecommunications Engineer's Reference Book maintains a balance between developments and established technology in telecommunications. This book consists of four parts. Part 1 introduces mathematical techniques that are required for the analysis of telecommunication systems. The physical environment of telecommunications and basic principles such as the teletraffic theory, electromagnetic waves, optics and vision, ionosphere and troposphere, and signals and noise are described in Part 2. Part 3 covers the political and regulatory environment of the telecommunications industry, telecommunication standards, open system interconnect reference model, multiple access techniques, and network management. The last part deliberates telecommunication applications that includes synchronous digital hierarchy, asynchronous transfer mode, integrated services digital network, switching systems, centrex, and call management. This publication is intended for practicing engineers, and as a supplementary text for undergraduate courses in telecommunications.

The capability and use of IT and web based energy information and control systems has expanded from single facilities to multiple facilities and organizations with buildings located throughout the world. This book answers the question of how to take the mass of available data and extract from it simple and useful information which can determine what actions to take to improve efficiency and productivity of commercial, institutional and industrial facilities. The book also provides insight into the areas of advanced applications for web based EIS and ECS systems, and the integration of IT / web based information and control systems with existing BAS systems.

for IT, Industrial, and Scientific Applications

For Fixed and Mobile Networks

Carbon Nitride Nanostructures for Sustainable Energy Production and Environmental Remediation

5G System Design

FCC Record

For Information and Communication Technologies and Related Areas

My first encoWter with acronyms took place when I was ten years old and growing up in an occupied COWtry during the Second World War. My father proudly annoWced one day that, despite the ban imposed by the occupying administration, he had managed to get a radio installed and could receive the BBC. (All acronyms used in this introduction are listed in this dictionary.) To me the meaning of"BBC" was that we would receive different information about the war than we got from the usual censored broadcasts. There was, of course, the well-known acronym associated with the nt, but at that time I did not realize that it meant more than the postal service, in those years a deteriorated service. Gradually the daily use of acronyms grew. Most of the newly acquired three-and four-letter abbreviations referred to organiza tions, such as the broadcasting corporations in The Netherlands and Belgium, and references to coWltries such as the USA, USSR, and UK. When attending high school (the HBS) after the war, my knowledge of acronyms grew slowly. Even during the ten years I spent in the Dutch Merchant Marine (the GHV), the number of acronyms was limited to advanced equipment that eventually became known as RADAR, LORAN, and DECCA.

Introduction to Network Simulator NS2 is a primer providing materials for NS2 beginners, whether students, professors, or researchers for understanding the architecture of Network Simulator 2 (NS2) and for incorporating simulation modules into NS2. The authors discuss the simulation architecture and the key components of NS2 including simulation-related objects, network objects, packet-related objects, and helper objects. The NS2 modules included within are nodes, links, SimpleLink objects, packets, agents, and applications. Further, the book covers three helper modules: timers, random number generators, and error models. Also included are chapters on summary of debugging, variable and packet tracing, result compilation, and examples for extending NS2. Two appendices provide the details of scripting language Tcl, Otcl and AWK, as well object oriented programming used extensively in NS2.

Instrument Engineers' Handbook - Volume 3: Process Software and Digital Networks, Fourth Edition is the latest addition to an enduring collection that industrial automation (AT) professionals often refer to as the "bible." First published in 1970, the entire handbook is approximately 5,000 pages, designed as standalone volumes that cover the measurement (Volume 1), control (Volume 2), and software (Volume 3) aspects of automation. This fourth edition of the third volume provides an in-depth, state-of-the-art review of control software packages used in plant optimization, control, maintenance, and safety. Each updated volume of this renowned reference requires about ten years to prepare, so revised installations have been issued every decade, taking into account the numerous developments that occur from one publication to the next. Assessing the rapid evolution of automation and optimization in control systems used in all types of industrial plants, this book details the wired/wireless communications and software used. This includes the ever-increasing number of applications for intelligent instruments, enhanced networks, Internet use, virtual private networks, and integration of control systems with the main networks used by management, all of which operate in a linked global environment. Topics covered include: Advances in new displays, which help operators to more quickly assess and respond to plant conditions Software and networks that help monitor, control, and optimize industrial processes, to determine the efficiency, energy consumption, and profitability of operations Strategies to counteract changes in demand conditions and energy and raw material costs Techniques to fortify the safety of plant operations and the security of digital communications systems This volume explores why the holistic approach to integrating process and enterprise networks is convenient and efficient, despite associated problems involving cyber and local network security, energy conservation, and other issues. It shows how firewalls must separate the business (IT) and the operation (automation technology, or AT) domains to guarantee the safe function of all industrial plants. This book illustrates how these concerns must be addressed using effective technical solutions and proper management policies and practices. Reinforcing the fact that all industrial control systems are, in general, critically interdependent, this handbook provides a wide range of software application examples from industries including: automotive, mining, renewable energy, steel, dairy, pharmaceutical, mineral processing, oil, gas, electric power, utility, and nuclear power.

With the widespread availability of high-speed, high-capacity microprocessors and microcomputers with high-speed communication ability, and sophisticated energy analytics software, the technology to support deployment of automated diagnostics is now available, and the opportunity to apply automated fault detection and diagnostics to every system and piece of equipment in a facility, as well as for whole buildings, is imminent. The purpose of this book is to share information with a broad audience on the state of automated fault detection and diagnostics for buildings applications, the benefits of those applications, emerging diagnostic technology, examples of field deployments, the relationship to codes and standards, automated diagnostic tools presently available, guidance on how to use automated diagnostics, and related issues.

Distributed Object Management

Web Based Energy Information and Control Systems

Telecommunications

Automated Diagnostics and Analytics for Buildings

Organic Narrowband Photodetectors

A Practical Approach

Written by today's leading experts in industry and academia, Wireless IP and Building the Mobile Internet is the first book to take a comprehensive look at the convergence of wireless and Internet technologies that are giving rise to the mobile wireless Internet. This cutting-edge resource provides you with an overview of all the elements required to understand and develop future IP based wireless multimedia communications and services.

This book provides a comprehensive view of green communications considering all areas of ICT including wireless and wired networks. It analyses particular concepts and practices, addressing holistic approaches in future networks considering a system perspective. It makes full use of tables, illustrations, performance graphs, case studies and examples making it accessible for a wide audience.

Characterization of Nanoencapsulated Food Ingredients, Volume Four in the Nanoencapsulation in the Food Industry series, introduces some of the common instrumental analysis and characterization methods for the evaluation of nanocarriers and nanoencapsulated ingredients in terms of their morphology, size distribution, surface charge and composition, appearance, physicochemical and rheological properties, and antioxidant activity. Divided in five sections, the book covers the qualitative and quantitative properties of nanoencapsulated food ingredients by different characterization techniques, besides correlating nanocarrier behavior to their physicochemical and functional properties. Authored by a team of global experts in the fields of nano- and microencapsulation of food, nutraceutical, and pharmaceutical ingredients, this title is of great value to those engaged in the various fields of nanoencapsulation and nanodelivery systems. Shows how different properties of nanoencapsulated food ingredients can be analyzed Presents the mechanism of each characterization technique Investigates how the analytical results can be understood with nanoincapsulated ingredients

Wax Deposition: Experimental Characterizations, Theoretical Modeling, and Field Practices covers the entire spectrum of knowledge on wax deposition. The book delivers a detailed description of the thermodynamic and transport theories for wax deposition modeling as well as a comprehensive review of laboratory testing for the establishment of appropriate field control strategies. Offering valuable insight from academic research and the flow assurance industry, this balanced text: Discusses the background of wax deposition, including the cause of the phenomenon, the magnitude of the problem, and its impact on petroleum production Introduces laboratory techniques and theoretical models to measure and predict key parameters of wax precipitation, such as the wax appearance temperature and the wax precipitation curve Explains how to conduct and interpret laboratory experiments to benchmark different wax deposition models, to better understand wax deposition behaviors, and to predict wax deposit growth for the field Presents various models for wax deposition, analyzing the advantages and disadvantages of each and evaluating the differences between the assumptions used Provides numerous examples of how field management strategies for wax deposition can be established based on laboratory testing and modeling work Wax Deposition: Experimental Characterizations, Theoretical Modeling, and Field aids flow assurance engineers in identifying the severity and controlling the problem of wax deposition. The book also shows students and researchers how fundamental principles of thermodynamics, heat, and mass transfer can be applied to solve a problem common to the petroleum industry.

Fundamentals, Mechanisms, Applications, and Countermeasures

Future Evolving Technologies

Guide to Voice and Video over IP

Process Software and Digital Networks, Fourth Edition

Automotive Antifreezes

Wireless Networking Technology

Appropriate for a first course on computer networking, this textbook describes the architecture and function of the application, transport, network, and link layers of the internet protocol stack, then examines audio and video networking applications, the underpinnings of encryption and network security, and the key issues of network management. Th

Covering the basic concepts and principles of Information Technology (IT), this book gives energy managers the knowledge they need to supervise the IT work of a consultant or a vendor. The book provides the necessary information for the energy manager to successfully purchase, install, and operate complex, Web-based energy information and control systems. Filled with comprehensive information, this book addresses the most significant concepts and principles that the typical energy or facility manager might need with emphasis on computer networking, use of facility operation databases, and sharing data using the Web and the TCP/IP communications protocol.

This book presents the most current information on distributed object management; a synthesis between systems and object orientation. It will be of interest to researchers in the field.

The MIS and LAN Managers Guide to Advanced Telecommunications examines the technologies, devices, and equipment commonly used by telecommunications carriers. Discussions include the basics of voice and data communications as well as a wide range of telecommunications topics, particularly wide area networks and digital networks focusing on client server LAN networks. Major issues surrounding LAN interconnection are explained in easy-to-understand language and numerous illustrations. The text provides the MIS or network manager with a comprehensive view of emerging telecommunications technologies, current networking technology for information systems, and detailed information on how to implement useful solutions. Additionally, the author reviews industry standard solutions from a technical perspective giving a detailed treatment of the various protocols and their operation and the applicability of the technology to support organizational data and communications needs for competitive advantage. The book is written for LAN, MIS, and IT managers, computer operations managers, telecom managers, technical service providers, equipment suppliers, network planners, and software engineers.

Computer Networking

The MIS and LAN Manager's Guide to Advanced Telecommunications

From Principles to Successful Implementation

Instrument Engineers' Handbook

Guide to Energy Management, Eighth Edition

System Engineering Analysis, Design, and Development

*The new edition of Advanced Wireless Communications: 4G Cognitive and Cooperative Broadband Technology, 2nd Edition, including the latest developments In the evolution of wireless communications, the dominant challenges are in the areas of networking and their integration with the Future Internet. Even the classical concept of cellular networks is changing and new technologies are evolving to replace it. To reflect these new trends Advanced Wireless Communications & INTERNET builds upon the previous volumes, enhancing the existing chapters, and including a number of new topics. Systematically guiding readers from the fundamentals through to advanced areas, each chapter begins with an introductory explanation of the basic problems and solutions followed with an analytical treatment in greater detail. The most important aspects of new emerging technologies in wireless communications are comprehensively covered including: next generation Internet; cloud computing and network virtualization; economics of utility computing and wireless grids and clouds. This gives readers an essential understanding of the overall environment in which future wireless networks will be operating. Furthermore, a number of methodologies for maintaining the network connectivity, by using tools ranging from genetic algorithms to stochastic geometry and random graphs theory, and a discussion on percolation and connectivity, are also offered. The book includes a chapter on network formation games, covering the general models, knowledge based network formation games, and coalition games in wireless ad hoc networks. Illustrates points throughout using real-life case studies drawn from the author's extensive international experience in the field of telecommunications Fully updated to include the latest developments, key topics covered include: Advanced routing and network coding; Network stability control; Relay-assisted Wireless Networks; Multicommodity flow optimization problems, flow optimization in heterogeneous networks, and dynamic resource allocation in computing clouds Methodically guides readers through each topic from basic to advanced areas Focuses on system elements that provide adaptability and re-configurability, and discusses how these features can improve wireless communications system performance*

*This book is the first standalone title on organic narrowband photodetectors, providing a comprehensive and up-to-date overview of the field and its applications. Organic Narrowband Photodetectors will benefit researchers and practitioners in optoelectronics, organic semiconductors, and related fields, as well as technology enthusiasts and students in physics, electronics engineering, chemistry, and material science.*

*This is the first book offering an in-depth and comprehensive IoT network simulation, supported by OPNET tool. Furthermore, the book presents the simulations of IoT in general, not limited by OPNET. The authors provide rich OPNET IoT simulation codes, with detailed explanation regarding the functionalities of the model. These codes can facilitate readers' fast implementation, and the shared model can guide readers through developing their own research. This book addresses various versions of Internet of Things (IoT), including human-centric IoT, green IoT, Narrow band IoT, Smart IoT, IoT-Cloud integration. The introduced OPNET IoT simulation provides a comprehensive platform to simulate above-mentioned IoT systems. Besides, this book introduces OPNET semi-physical simulation in detail. Based on this technology, simulated IoT and practical cloud are seamlessly connected with each other. On top of this "IoT-cloud-integration" semi-physical simulation environment, various smart IoT applications can be realized.*

*This book presents a detailed pedagogical description of the 5G commercial wireless communication system design, from an end to end perspective. It compares and contrasts NR with LTE, and gives a concise and highly accessible description of the key technologies in the 5G physical layer, radio access network layer protocols and procedures. This book also illustrates how the 5G core and EPC is integrated into the radio access network, how virtualization and edge computer fundamentally change the way users interact with the network, as well as 5G spectrum issues. This book is structured into six chapters. The first chapter reviews the use cases, requirements, and standardization organization and activities for 5G. These are 5G requirements and not NR specifically, as technology that meets the requirements, may be submitted to the ITU as 5G technology. This includes a set of Radio Access Technologies (RATs), consisting of NR and LTE; with each RAT meeting different aspects of the requirements. The second chapter describes the air interface of NR and LTE side by side. The basic aspects of LTE that NR builds upon are first described, followed by sections on the NR specific technologies, such as carrier/channel, spectrum/duplexing (including SUL), LTE/NR co-existence and new physical layer technologies (including waveform, Polar/LDPC codes, MIMO, and URLLC/mMTC). In all cases the enhancements made relative to LTE are made apparent. The third chapter contains descriptions of NR procedures (IAM/Beam Management/Power control/HARQ), protocols (CP/UP/mobility, including grant-free), and RAN architecture. The fourth chapter includes a detailed discussion related to end-to-end system architecture, and the 5G Core (5GC), network slicing, service continuity, relation to EPC, network virtualization, and edge computing. The fifth and major chapter describes the ITU submission and how NR and LTE meet the 5G requirements in significant detail, from the rapporteur responsible for leading the preparation and evaluation, as well as some field trial results. Engineers, computer scientists and professionals with a passing knowledge of 4G LTE and a comprehensive understanding of the end to end 5G commercial wireless system will find this book to be a valuable asset. Advanced-level students and researchers studying and working in communication engineering, who want to gain an understanding of the 5G system (as well as methodologies to evaluate features and technologies intended to supplement 5G) will also find this book to be a valuable resource.*

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*Instrument Engineers' Handbook, Volume 3*

*Web Based Enterprise Energy and Building Automation Systems*

*Modern Cable Television Technology*

*An End to End Perspective*

*A Comprehensive Compilation of Decisions, Reports, Public Notices, and Other Documents of the Federal Communications Commission of the United States*

Beneficial properties of graphitic carbon nitride (gCN) have been discovered in recent years during the promotion of its visible?light?driven photocatalytic activity for water splitting. Applications of gCN have flourished in such fields as renewable energy production and environmental remediation, while gCNs have been explored to serve as electrocatalysts, electronic and photoelectronic devices, non-volatile memory devices, anodes in lithium?ion batteries, and platinum supports in polymer electrolyte fuel cells. This book covers recent advances in the rational design and characterization of gCN nanostructures for energy and environmental remediation, and discusses achievements in fabrication approaches of gCN nanostructures using various chemical and physical approaches. It highlights recent advances in the theoretical and experimental development of novel multidimensional nanoarchitectonics of gCNs along with insight into catalytic energy production, energy storage, and environmental remediation. Practical applications and utilization of gCN based devices are also discussed. With contributions from leading global researchers, this title will appeal to graduate students and researchers in nanoscience, chemistry, chemical engineering and materials science who are interested in developing new gCN materials or devices.

This book promotes the benefits of the development and application of energy information and control systems. This wave of information technology (IT) and web-based energy information and control systems (web based EIS/ECS) continues to roll on with increasing speed and intensity. This handbook presents recent technological advancements in the field, as well as a compilation of the best information from three previous books in this area. The combined thrust of this information is that the highest level functions of the building and facility automation system are delivered by a web based EIS/ECS system that provides energy management, facility management, overall facility operational management and ties in with the enterprise resource management system for the entire facility or the group of facilities being managed.

Advances in new equipment, new processes, and new technology are the driving forces in improvements in energy management, energy efficiency and energy cost control. The purpose of this book is to document the operational experience with web based systems in actual facilities and in varied applications, and to show how new opportunities have developed for energy and facility managers to quickly and effectively control and manage their operations. You'll find information on what is actually happening at other facilities, and see what is involved for current and future installations of internet-based technologies. The case studies and applications described should greatly assist energy, facility and maintenance managers, as well as consultants and control systems development engineers.

Building Services Engineering

Green Communications

Introduction to Data Communications

Reverse Acronyms, Initialisms, & Abbreviations Dictionary

Dictionary of Acronyms and Technical Abbreviations

Case Studies and Applications