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An Introduction to Packet Microwave Systems and Technologies  
LTE Security  
Evolved Cellular Network Planning and Optimization for UMTS and LTE  
Handbook of Communications Security  
A Guide to the Wireless Engineering Body of Knowledge (WEBOK)  
Self-Organization and Green Applications in Cognitive Radio Networks  
From LTE to LTE-Advanced Pro and 5G  
Integrated Models for Information Communication Systems and Networks: Design and Development  
Handbook of Research on Next Generation Mobile Communication Systems  
Monitoring and Analysis of 4G Mobile Networks: A Practical Guide for Telecommunications Engineering Training  
A Guide to the Wireless Engineering Body of Knowledge (WEBOK)  
Practical Guide to LTE-A, VoLTE and IoT  
Cellular Communications  
Fundamentals of Network Planning and Optimisation  
2G/3G/4G  
LTE, WiMAX and WLAN Network Design, Optimization and Performance Analysis  
The LTE-Advanced Deployment Handbook

An intuitive and insightful overview of the technical and business aspects of the telecoms industry  
In *The Technology and Business of Mobile Telecommunications: An Introduction*, a team of expert telecommunications researchers and consultants delivers a rigorous exploration of the technical and business aspects of mobile telecommunications. The book offers a complete overview of an industry that has seen rapid technical and economic changes while retaining the ability to provide end users with communications coverage and capacity. The authors demonstrate the technical foundations of the mobile industry and show how a communications network is deployed. They detail many of the main innovations introduced over the last few years and some of the most salient challenges facing the industry today. The business models of major mobile operators are examined as well, from the purchasing spectrum to network deployment and customer attraction and retention. The role of the regulator is also thoroughly discussed, with explorations of its role in encouraging the maintenance of a competitive market in which the needs of consumers are met. Readers will also enjoy: Thorough introductions to the social and economic impacts of mobile communications, as well as a brief history of mobile and cellular communications  
Comprehensive explorations of the mobile telecoms ecosystem, from spectrum regulation to standardization, research, end users, operators, vendors, and standard bodies  
Practical discussions of the business models and challenges of mobile operators, including mobile virtual network operators and the implementation of international roaming  
In-depth examinations of telecommunications standards, including 5G  
Perfect for anyone studying mobile telecommunications technology at the undergraduate and graduate levels, *The Technology and Business of Mobile Telecommunications: An Introduction* is also an indispensable resource for practitioners within the telecommunications industry in a technical or business-oriented role.  
The Internet of Things (IoT) has grown from a niche market for machine-to-machine communication into a global phenomenon that is touching our lives daily. The key aspects of IoT are covered in this book, including the anatomy of an IoT device and how it is connected to a backend system, the nuances of data extraction and keeping the data safe and secure, the role of the SIM card in cellular connected IoT devices, and how IoT devices are controlled. Low-power wide-area devices that will allow almost anything to be connected, how IoT devices are being connected around the world, and how 5G and edge computing will continue to drive new use cases are explained. Overcoming the challenges of creating IoT applications and hardware is covered. Detailed examples of how IoT is being used in the spaces of industrial, consumer, transportation, robotics, and wearables are provided. The IoT industry is explained. Finally, the future of IoT is covered in light of technical, social, and economic advances.  
This book presents the proceedings of the 3rd International Conference of Reliable Information and Communication Technology 2018 (IRICT 2018), which was held in Kuala Lumpur, Malaysia, on July 23–24, 2018. The main theme of the conference was “Data Science, AI and IoT Trends for the Fourth Industrial Revolution.” A total of 158 papers were submitted to the conference, of which 103 were accepted and considered for publication in this book. Several hot research topics are covered, including Advances in Data Science and Big Data Analytics, Artificial Intelligence and Soft Computing, Business Intelligence, Internet of Things (IoT) Technologies and Applications, Intelligent Communication Systems, Advances in Computer Vision, Health Informatics, Reliable Cloud Computing Environments, Recent Trends in Knowledge Management, Security Issues in the Cyber World, and Advances in Information Systems Research, Theories and Methods.  
The must-have guide to the CWTS exam, updated for 2017  
CWTS Certified Wireless Technology Specialist Study Guide is your number-one resource for comprehensive exam preparation. Updated to study in 2017 and beyond, this book takes a multi-modal approach to ensure your complete confidence and ability for the big day: full coverage of all CWTS exam objectives reinforces your conceptual knowledge, hands-on exercises help hone your practical skills, and the Sybex online learning environment provides flashcards, a glossary, and review questions to help you test your understanding along the way. An objective map and pre-assessment test allow for more efficient preparation by showing you what you already know and what you need to review—and the companion website's complete practice exams give you a “dry run” so you can pinpoint weak areas while there's still time to improve. If you're serious about earning your CWTS certification, this book is your ideal companion for complete and thorough preparation. Learn critical concepts and apply essential skills in areas like hardware and software, radio frequency fundamentals, surveying and installation, support, troubleshooting, security, and more. This guide gives you everything you need to approach the exam with confidence. Master 100 percent of the CWTS exam objectives  
Use effective planning tools to get the most out of your study time  
Practice your skills with hands-on exercises and real-world scenarios  
Access online study aids that let you review any time, any place  
The CWTS certification gets your foot in the door of a growing industry, and is a stepping stone to the industry standard CWNP certification. The exam will test your abilities in all fundamental areas of Wi-Fi technology, so it's important that your study plan be complete and up-to-date.  
CWTS Certified Wireless Technology Specialist Study Guide is your ideal solution for comprehensive preparation.  
This book is a must-read for all network planners and other professionals wishing to improve the quality and cost efficiency of 3G and LTE networks  
In this book, the authors address the architecture of the 2/3G network and the Long Term

Evolution (LTE) network. The book proposes analytical models that make the analysis and dimensioning of the most important interfaces, i.e. WCDMA or Uu, possible. Furthermore, the authors include descriptions of fundamental technological issues in 2/3 G networks, basic traffic engineering models and frequent examples of the application of analytical models in the analysis and dimensioning of the interface of cellular networks. The specific knowledge included in the content will enable the reader to understand and then to prepare appropriate programming softwares that will allow them to evaluate quality parameters of cellular networks, i.e. blocking probabilities or call losses. Additionally, the book presents models for the analysis and dimensioning of the Wideband Code Division Multiple Access (WCDMA) radio interface and the Uu interface, both carrying a mixture of Release 99 traffic (R99) and High-Speed Packet Access (HSPA) traffic streams. Finally, the analytical models presented in the book can be also used in the process of modeling and optimization of LTE networks. Key Features: Describes the architecture and the modes of operation of the cellular 2/3/4G systems and the LTE network Covers the traffic theory and engineering within the context of mobile networks Presents original analytical methods that enable their users to dimension selected interfaces of cellular networks Discusses models for the analysis and dimensioning of the Wideband Code Division Multiple Access (WCDMA) radio interface and the Uu interface, both carrying a mixture of Release 99 traffic (R99) and High-Speed Packet Access (HSPA) traffic streams Includes problems as well as an accompanying website containing solutions, software tools and interactive flash animations (<http://wiley.teletraffic.pl>) This book will be an invaluable guide for professional engineers (radio planning engineers, optimization engineers, transmission engineers, core network engineers, Service Management engineers) working in the areas of mobile wireless networks technology, not only in optimization process, but also in profitability assessment of newly implemented services (i.e. in NPV - Net Present Value analysis), and researchers and scientists. Advanced students in the fields of mobile communications networks and systems will also find this book insightful. This fully revised and updated new edition of the definitive text/reference on computer network and information security presents a comprehensive guide to the repertoire of security tools, algorithms and best practices mandated by the technology we depend on. Topics and features: highlights the magnitude of the vulnerabilities, weaknesses and loopholes inherent in computer networks; discusses how to develop effective security solutions, protocols, and best practices for the modern computing environment; examines the role of legislation, regulation, and enforcement in securing computing and mobile systems; describes the burning security issues brought about by the advent of the Internet of Things and the eroding boundaries between enterprise and home networks (NEW); provides both quickly workable and more thought-provoking exercises at the end of each chapter, with one chapter devoted entirely to hands-on exercises; supplies additional support materials for instructors at an associated website. A concise, updated guide to the 3GPP LTE Security Standardization specifications A welcome Revised Edition of the successful LTE Security addressing the security architecture for SAE/LTE, which is based on elements of the security architectures for GSM and 3G, but which needed a major redesign due to the significantly increased complexity, and different architectural and business requirements of fourth generation systems. The authors explain in detail the security mechanisms employed to meet these requirements. These specifications generated by standardization bodies only inform about how to implement the system (and this only to the extent required for interoperability), but almost never inform readers about why things are done the way they are. Furthermore, specifications tend to be readable only for a small group of experts and lack the context of the broader picture. The book fills this gap by providing first hand information from insiders who participated in decisively shaping SAE/LTE security in the relevant standardization body, 3GPP, and can therefore explain the rationale for design decisions in this area. A concise, fully updated guide to the 3GPP LTE Security Standardization specifications Describes the essential elements of LTE and SAE Security, written by leading experts who participated in decisively shaping SAE/LTE security in the relevant standardization body, 3GPP Explains the rationale behind the standards specifications giving readers a broader understanding of the context to these specifications Includes new chapters covering 3GPP work on system enhancements for MTC, plus application layer security in ETSI TC M2M and embedded smart card in ETSI SCP; Security for Machine-type Communication, Relay Node Security, and Future Challenges, including Voice over LTE, MTC, Home base stations, LIPA/SIPTO, and New Cryptographic Algorithms Essential reading for System engineers, developers and people in technical sales working in the area of LTE and LTE security, communication engineers and software developers in mobile communication field. Most books on network planning and optimization provide limited coverage of either GSM or WCDMA techniques. Few scrape the surface of HSPA, and even fewer deal with TD-SCDMA. Filling this void, Evolved Cellular Network Planning and Optimization for UMTS and LTE presents an accessible introduction to all stages of planning and optimizing UMTS, HSPA. Anyone who has ever shopped for a new smart phone, laptop, or other tech gadget knows that staying connected is crucial. There is a lot of discussion over which service provider offers the best coverage—enabling devices to work anywhere and at any time—with 4G and LTE becoming a pervasive part of our everyday language. The Handbook of Research on Next Generation Mobile Communication Systems offers solutions for optimal connection of mobile devices. From satellite signals to cloud technologies, this handbook focuses on the ways communication is being revolutionized, providing a crucial reference source for consumers, researchers, and business professionals who want to be on the frontline of the next big development in wireless technologies. This publication features a wide variety of research-based articles that discuss the future of topics such as bandwidth, energy-efficient power, device-to-device communication, network security and privacy, predictions for 5G communication systems, spectrum sharing and connectivity, and many other relevant issues that will influence our everyday use of technology. The official study guide for the Certified Wireless Design Professional (CWDP) exam from CWNP! This official guide is what you need to prepare for the vendor-neutral CWDP exam (PW0-250), which tests an IT professional's ability to design, plan, and troubleshoot a wireless network. Administered by CWNP, the industry leader for enterprise Wi-Fi training and certification, the CWDP exam is for those operating in large WLAN deployments. This practical guide not only covers all exam objectives, it also gives you practical information on designing for complex environments such as businesses, hospitals, educational facilities, and in outdoor spaces. Covers all exam objectives for the Certified Wireless Design Professional (CWDP) exam, exam PW0-250 Covers planning, developing a WLAN design strategy and RF, conducting advanced site surveying, developing 802.11 security, and troubleshooting Companion CD includes two practice exams and over 100 electronic flashcards Sybex is the official publisher for Certified Wireless Network Professional, Inc., the certifying vendor for the CWAP program If you want to prepare for CWNP certification, a Sybex Study Guide is what you need! Note: CD-ROM materials for eBook purchases can be downloaded from <http://booksupport.wiley.com>. This book introduces the technical foundations and tools for estimating the power consumption of internet networks and services, including a detailed description of how these models are constructed and applied. Modeling the Power Consumption and Energy Efficiency of Telecommunications Networks can be used to gain insight into the construction of mathematical models that provide realistic estimates of the power consumption of internet networks and services. This knowledge

enables forecasting the energy footprint of future networks and services to integrate sustainability and environmental considerations into network planning and design. FEATURES Provides the motivation for developing mathematical models for telecommunications network and service power consumption and energy efficiency modeling Presents factors impacting overall network and service power consumption Discusses the types of network equipment and their power consumption profiles Reviews the basics of power modeling, including network segmentation, traffic forecasting, top-down and bottom-up models, wired and wireless networks, data centers and servers Explores the application of energy efficiency metrics for equipment, networks, and services This book is aimed at students and technologists as well as technology managers and policy makers. This book will be of value to any organization that wishes to estimate the energy footprint of the use of information and communications technologies. This book can also be integrated into a course on the sustainability of information and communications technologies. Why is high performance indoor wireless service needed, and how is it best implemented? As the challenge of providing better service and higher data speeds and quality for mobile applications intensifies, ensuring adequate in-building and tunnel coverage and capacity is increasingly important. A unique, single-source reference on the theoretical and practical knowledge behind indoor and tunnel radio planning, this book provides a detailed overview of mobile networks systems, coverage and capacity solutions with 2G, 3G and 4G cellular system technologies as a backdrop. The ultimate reference on wireless technology—now updated and revised Fully updated to incorporate the latest developments and standards in the field, A Guide to the Wireless Engineering Body of Knowledge, Second Edition provides industry professionals with a one-stop reference to everything they need to design, implement, operate, secure, and troubleshoot wireless networks. Written by a group of international experts, the book offers an unmatched breadth of coverage and a unique focus on real-world engineering issues. The authors draw upon extensive experience in all areas of the technology to explore topics with proven practical applications, highlighting emerging areas such as Long Term Evolution (LTE) in wireless networks. The new edition is thoroughly revised for clarity, reviews wireless engineering fundamentals, and features numerous references for further study. Based on the areas of expertise covered in the IEEE Wireless Communication Engineering Technologies (WCET) exam, this book explains: Wireless access technologies, including the latest in mobile cellular technology Core network and service architecture, including important protocols and solutions Network management and security, from operations process model to key security issues Radio engineering and antennas, with specifics on radio frequency propagation and wireless link design Facilities infrastructure, from lightning protection to surveillance systems With this trusted reference at their side, wireless practitioners will get up to speed on advances and best practices in the field and acquire the common technical language and tools needed for working in different parts of the world. The Definitive Guide to LTE Technology Long-Term Evolution (LTE) is the next step in the GSM evolutionary path beyond 3G technology, and it is strongly positioned to be the dominant global standard for 4G cellular networks. LTE also represents the first generation of cellular networks to be based on a flat IP architecture and is designed to seamlessly support a variety of different services, such as broadband data, voice, and multicast video. Its design incorporates many of the key innovations of digital communication, such as MIMO (multiple input multiple output) and OFDMA (orthogonal frequency division multiple access), that mandate new skills to plan, build, and deploy an LTE network. In Fundamentals of LTE, four leading experts from academia and industry explain the technical foundations of LTE in a tutorial style—providing a comprehensive overview of the standards. Following the same approach that made their recent Fundamentals of WiMAX successful, the authors offer a complete framework for understanding and evaluating LTE. Topics include Cellular wireless history and evolution: Technical advances, market drivers, and foundational networking and communications technologies Multicarrier modulation theory and practice: OFDM system design, peak-to-average power ratios, and SC-FDE solutions Frequency Domain Multiple Access: OFDMA downlinks, SC-FDMA uplinks, resource allocation, and LTE-specific implementation Multiple antenna techniques and tradeoffs: spatial diversity, interference cancellation, spatial multiplexing, and multiuser/networked MIMO LTE standard overview: air interface protocol, channel structure, and physical layers Downlink and uplink transport channel processing: channel encoding, modulation mapping, Hybrid ARQ, multi-antenna processing, and more Physical/MAC layer procedures and scheduling: channel-aware scheduling, closed/open-loop multi-antenna processing, and more Packet flow, radio resource, and mobility management: RLC, PDCP, RRM, and LTE radio access network mobility/handoff procedures This book provides an insight into the key practical aspects and best practice of 4G-LTE network design, performance, and deployment Design, Deployment and Performance of 4G-LTE Networks addresses the key practical aspects and best practice of 4G networks design, performance, and deployment. In addition, the book focuses on the end-to-end aspects of the LTE network architecture and different deployment scenarios of commercial LTE networks. It describes the air interface of LTE focusing on the access stratum protocol layers: PDCP, RLC, MAC, and Physical Layer. The air interface described in this book covers the concepts of LTE frame structure, downlink and uplink scheduling, and detailed illustrations of the data flow across the protocol layers. It describes the details of the optimization process including performance measurements and troubleshooting mechanisms in addition to demonstrating common issues and case studies based on actual field results. The book provides detailed performance analysis of key features/enhancements such as C-DRX for Smartphones battery saving, CSFB solution to support voice calls with LTE, and MIMO techniques. The book presents analysis of LTE coverage and link budgets alongside a detailed comparative analysis with HSPA+. Practical link budget examples are provided for data and VoLTE scenarios. Furthermore, the reader is provided with a detailed explanation of capacity dimensioning of the LTE systems. The LTE capacity analysis in this book is presented in a comparative manner with reference to the HSPA+ network to benchmark the LTE network capacity. The book describes the voice options for LTE including VoIP protocol stack, IMS Single Radio Voice Call Continuity (SRVCC). In addition, key VoLTE features are presented: Semi-persistent scheduling (SPS), TTI bundling, Quality of Service (QoS), VoIP with C-DRX, Robust Header Compression (RoHC), and VoLTE Vocoders and De-Jitter buffer. The book describes several LTE and LTE-A advanced features in the evolution from Release 8 to 10 including SON, eICIC, CA, CoMP, HetNet, Enhanced MIMO, Relays, and LBS. This book can be used as a reference for best practices in LTE networks design and deployment, performance analysis, and evolution strategy. Conveys the theoretical background of 4G-LTE networks Presents key aspects and best practice of 4G-LTE networks design and deployment Includes a realistic roadmap for evolution of deployed 3G/4G networks Addresses the practical aspects for designing and deploying commercial LTE networks. Analyzes LTE coverage and link budgets, including a detailed comparative analysis with HSPA+. References the best practices in LTE networks design and deployment, performance analysis, and evolution strategy Covers infrastructure-sharing scenarios for CAPEX and OPEX saving. Provides key practical aspects for supporting voice services over LTE, Written for all 4G engineers/designers working in networks design for operators, network deployment engineers, R&D engineers, telecom consulting firms, measurement/performance tools firms, deployment subcontractors, senior undergraduate students and graduate students interested in understanding the practical aspects of 4G-LTE networks as part of

their classes, research, or projects. Self-Organization and Green Applications in Cognitive Radio Networks provides recent research on the developments of efficient cognitive network topology. The most current procedures and results are presented to demonstrate how developments in this area can reduce complications, confusion, and even costs. The book also identifies future challenges that are predicted to arrive in the Cognitive Radio Network along with potential solutions. This innovative publication is unique because it suggests green, energy efficient and cost efficient resolutions to the inevitable challenges in the network. The book presents the proceedings of four conferences: The 19th International Conference on Security & Management (SAM'20), The 19th International Conference on Wireless Networks (ICWN'20), The 21st International Conference on Internet Computing & Internet of Things (ICOMP'20), and The 18th International Conference on Embedded Systems, Cyber-physical Systems (ESCS'20). The conferences took place in Las Vegas, NV, USA, July 27-30, 2020. The conferences are part of the larger 2020 World Congress in Computer Science, Computer Engineering, & Applied Computing (CSCE'20), which features 20 major tracks. Authors include academics, researchers, professionals, and students. Presents the proceedings of four conferences as part of the 2020 World Congress in Computer Science, Computer Engineering, & Applied Computing (CSCE'20); Includes the tracks on security & management, wireless networks, internet computing and IoT, and embedded systems as well as cyber-physical systems; Features papers from SAM'20, ICWN'20, ICOMP'20 and ESCS'20. This book provides a comprehensive overview of modern networks design, from specifications and modeling to implementations and test procedures, including the design and implementation of modern networks on chip, in both wireless and mobile applications. Topical coverage includes algorithms and methodologies, telecommunications, hardware (including networks on chip), security and privacy, wireless and mobile networks and a variety of modern applications, such as VoLTE and the internet of things. The first comprehensive guide to the design and implementation of security in 5G wireless networks and devices Security models for 3G and 4G networks based on Universal SIM cards worked very well. But they are not fully applicable to the unique security requirements of 5G networks. 5G will face additional challenges due to increased user privacy concerns, new trust and service models and requirements to support IoT and mission-critical applications. While multiple books already exist on 5G, this is the first to focus exclusively on security for the emerging 5G ecosystem. 5G networks are not only expected to be faster, but provide a backbone for many new services, such as IoT and the Industrial Internet. Those services will provide connectivity for everything from autonomous cars and UAVs to remote health monitoring through body-attached sensors, smart logistics through item tracking to remote diagnostics and preventive maintenance of equipment. Most services will be integrated with Cloud computing and novel concepts, such as mobile edge computing, which will require smooth and transparent communications between user devices, data centers and operator networks. Featuring contributions from an international team of experts at the forefront of 5G system design and security, this book: Provides priceless insights into the current and future threats to mobile networks and mechanisms to protect it Covers critical lifecycle functions and stages of 5G security and how to build an effective security architecture for 5G based mobile networks Addresses mobile network security based on network-centricity, device-centricity, information-centricity and people-centricity views Explores security considerations for all relative stakeholders of mobile networks, including mobile network operators, mobile network virtual operators, mobile users, wireless users, Internet-of things, and cybersecurity experts Providing a comprehensive guide to state-of-the-art in 5G security theory and practice, A Comprehensive Guide to 5G Security is an important working resource for researchers, engineers and business professionals working on 5G development and deployment. This book covers issues related to 5G network security. The authors start by providing details on network architecture and key requirements. They then outline the issues concerning security policies and various solutions that can handle these policies. Use of SDN-NFV technologies for security enhancement is also covered. The book includes intelligent solutions by utilizing the features of artificial intelligence and machine learning to improve the performance of the 5G security protocols and models. Optimization of security models is covered as a separate section with a detailed information on the security of 5G-based edge, fog, and osmotic computing. This book provides detailed guidance and reference material for academicians, professionals, and researchers. Presents extensive information and data on research and challenges in 5G networks; Covers basic architectures, models, security frameworks, and software-defined solutions for security issues in 5G networks; Provides solutions that can help in the growth of new startups as well as research directions concerning the future of 5G networks. A one-stop desk reference for R&D engineers involved in communications engineering, this book will not gather dust on the shelf. It brings together the essential professional reference content from leading international contributors in the field. Material covers a wide scope of topics, including voice, computer, facsimile, video, and multimedia data technologies. \* A hard-working desk reference, providing all the essential material needed by communications engineers on a day-to-day basis \* Fundamentals, key techniques, engineering best practice and rules-of-thumb together in one quick-reference sourcebook \* Definitive content by the leading authors in the field A technological overview of LTE and WiMAX LTE, WiMAX and WLAN Network Design, Optimization and Performance Analysis provides a practical guide to LTE and WiMAX technologies introducing various tools and concepts used within. In addition, topics such as traffic modelling of IP-centric networks, RF propagation, fading, mobility, and indoor coverage are explored; new techniques which increase throughput such as MIMO and AAS technology are highlighted; and simulation, network design and performance analysis are also examined. Finally, in the latter part of the book Korowajczuk gives a step-by-step guide to network design, providing readers with the capability to build reliable and robust data networks. By focusing on LTE and WiMAX this book extends current network planning approaches to next generation wireless systems based on OFDMA, providing an essential resource for engineers and operators of fixed and wireless broadband data access networks. With information presented in a sequential format, LTE, WiMAX and WLAN Network Design, Optimization and Performance Analysis aids a progressive development of knowledge, complementing latter graduate and postgraduate courses while also providing a valuable resource to network designers, equipment vendors, reference material, operators, consultants, and regulators. Key Features: One of the first books to comprehensively explain and evaluate LTE Provides an unique explanation of the basic concepts involved in wireless broadband technologies and their applications in LTE, WiMAX, and WLAN before progressing to the network design Demonstrates the application of network planning for LTE and WiMAX with theoretical and practical approaches Includes all aspects of system design and optimization, such as dynamic traffic simulations, multi-layered traffic analysis, statistical interference analysis, and performance estimations A technological overview of LTE and WiMAX LTE, WiMAX and WLAN Network Design, Optimization and Performance Analysis provides a practical guide to LTE and WiMAX technologies introducing various tools and concepts used within. In addition, topics such as traffic modelling of IP-centric networks, RF propagation, fading, mobility, and indoor coverage are explored; new techniques which increase throughput such as MIMO and AAS technology are highlighted; and simulation, network design and performance analysis are also examined. Finally, in the latter part of the book Korowajczuk gives a step-by-step guide to network design, providing readers with the capability to build

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Key Features: One of the first books to comprehensively explain and evaluate LTE Provides an unique explanation of the basic concepts involved in wireless broadband technologies and their applications in LTE, WiMAX, and WLAN before progressing to the network design Demonstrates the application of network planning for LTE and WiMAX with theoretical and practical approaches Includes all aspects of system design and optimization, such as dynamic traffic simulations, multi-layered traffic analysis, statistical interference analysis, and performance estimations With current advancements in the modeling and simulation of systems and networks, researchers and developers are better able to determine the probable state of current systems and envision the state of future systems during the design stage. The uses and accuracies of these models are essential to every aspect of communication systems. Integrated Models for Information Communication Systems and Networks: Design and Development explores essential information and current research findings on information communication systems and networks. This reference source aims to assist professionals in the desire to enhance their knowledge of modeling at systems level with the aid of modern software packages. The first comprehensive guide to the design and implementation of security in 5G wireless networks and devices Security models for 3G and 4G networks based on Universal SIM cards worked very well. But they are not fully applicable to the unique security requirements of 5G networks. 5G will face additional challenges due to increased user privacy concerns, new trust and service models and requirements to support IoT and mission-critical applications. 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Featuring contributions from an international team of experts at the forefront of 5G system design and security, this book: Provides priceless insights into the current and future threats to mobile networks and mechanisms to protect it Covers critical lifecycle functions and stages of 5G security and how to build an effective security architecture for 5G based mobile networks Addresses mobile network security based on network-centricity, device-centricity, information-centricity and people-centricity views Explores security considerations for all relative stakeholders of mobile networks, including mobile network operators, mobile network virtual operators, mobile users, wireless users, Internet-of things, and cybersecurity experts Providing a comprehensive guide to state-of-the-art in 5G security theory and practice, A Comprehensive Guide to 5G Security is an important working resource for researchers, engineers and business professionals working on 5G development and deployment. Providing a thorough introduction to packet microwave systems and technologies, this unique book focuses on the architecture of microwave networks and the applications of packet microwaves, particularly in mobile backhaul. IP and data technologies which are the key differentiator of packet microwave systems are explored. Microwave applications and packet microwave, including radio equipment chain, full-indoor and outdoor applications, and operational aspects are presented along with packet microwave in hybrid applications and packet technologies for capacity scale. The structure of packet microwave network and mobile backhaul along with a glance at the evolution of packet microwave are discussed. Readers find support for end-to-end design of transmission services in this book. LTE-Advanced is the new Global standard which is expected to create a foundation for the future wireless broadband services. The standard incorporates all the latest technologies recently developed in the field of wireless communications. Presented in a modular style, the book provides an introductory description for beginners as well as practical guidelines for telecom specialists. It contains an introductory module that is suitable for the initial studies of the technology based on the 3GPP Release 10, 11 and beyond of LTE and SAE. The latter part of the book is suitable for experienced professionals who will benefit from the practical descriptions of the physical core and radio network planning, end-to-end performance measurements, physical network construction and optimization of the system. The focus of the book is in the functioning, planning, construction, measurements and optimization of the radio and core networks of the Release 10 and beyond of the 3GPP LTE and SAE standards. It looks at the practical description of the Advanced version of the LTE/SAE, how to de-mystify the LTE-Advanced functionality and planning, and how to carry out practical measurements of the system. In general, the book describes "how-to-do-it" for the 4G system which is compliant with the ITU-R requirements. Updated new edition covering all aspects of network planning and optimization This welcome new edition provides comprehensive coverage of all aspects of network planning in all the technologies, from 2G to 5G, in radio, transmission and core aspects. Written by leading experts in the field, it serves as a handbook for anyone engaged in the study, design, deployment and business of cellular networks. It increases basic understanding of the currently deployed, and emerging, technologies, and helps to make evolution plans for future networks. The book also provides an overview of the forthcoming technologies that are expected to make an impact in the future, such as 5G. Fundamentals of Cellular Network Planning and Optimization, Second Edition encompasses all the technologies as well as the planning and implementation details that go with them. It covers 2G (GSM, EGPRS), 3G (WCDMA) and 4G (LTE) networks and introduces 5G. The book also looks at all the sub-systems of the network, focusing on both the practical and theoretical issues. Provides comprehensive coverage of the planning aspects of the full range of today's mobile network systems, covering radio access network, circuit and packet switching, signaling, control, and backhaul/Core transmission networks New elements in book include HSPA, Ethernet, 4G/LTE and 5G Covers areas such as Virtualization, IoT, Artificial Intelligence, Spectrum Management and Cloud By bringing all these concepts under one cover, Fundamentals of Cellular Network Planning and Optimization becomes essential reading for network design engineers working with cellular service vendors or operators, experts/scientists working on end-to-end issues, and undergraduate/post-graduate students. Even as newer cellular technologies and standards emerge, many of the fundamental principles and the components of the cellular network remain the same. Presenting a simple yet comprehensive view of cellular communications technologies, Cellular Communications provides an end-to-end perspective of cellular operations, ranging from physical layer details to call set-up and from the radio network to the core network. This self-contained source for practitioners and students represents a comprehensive survey of the fundamentals of cellular communications and the landscape of commercially deployed 2G and 3G technologies and provides a glimpse of emerging 4G technologies. The ultimate CISA prep guide, with practice exams Sybex's

CISA: Certified Information Systems Auditor Study Guide, Fourth Edition is the newest edition of industry-leading study guide for the Certified Information System Auditor exam, fully updated to align with the latest ISACA standards and changes in IS auditing. This new edition provides complete guidance toward all content areas, tasks, and knowledge areas of the exam and is illustrated with real-world examples. All CISA terminology has been revised to reflect the most recent interpretations, including 73 definition and nomenclature changes. Each chapter summary highlights the most important topics on which you'll be tested, and review questions help you gauge your understanding of the material. You also get access to electronic flashcards, practice exams, and the Sybex test engine for comprehensive thorough preparation. For those who audit, control, monitor, and assess enterprise IT and business systems, the CISA certification signals knowledge, skills, experience, and credibility that delivers value to a business. This study guide gives you the advantage of detailed explanations from a real-world perspective, so you can go into the exam fully prepared. Discover how much you already know by beginning with an assessment test Understand all content, knowledge, and tasks covered by the CISA exam Get more in-depths explanation and demonstrations with an all-new training video Test your knowledge with the electronic test engine, flashcards, review questions, and more The CISA certification has been a globally accepted standard of achievement among information systems audit, control, and security professionals since 1978. If you're looking to acquire one of the top IS security credentials, CISA is the comprehensive study guide you need. Communications represent a strategic sector for privacy protection and for personal, company, national and international security. The interception, damage or loss of information during communication can generate material and non material economic damages from both a personal and collective point of view. The purpose of this book is to give the reader information relating to all aspects of communications security, beginning at the base ideas and building to reach the most advanced and updated concepts. The book will be of interest to integrated system designers, telecommunication designers, system engineers, system analysts, security managers, technicians, intelligence personnel, security personnel, police, army, private investigators, scientists, graduate and postgraduate students and anyone that needs to communicate in a secure way. Practical Guide Provides Students and Industry Professionals with Latest Information on 5G Mobile Networks Continuing the tradition established in his previous publications, Jyrki Penttinen offers 5G Explained as a thorough yet concise introduction to recent advancements and growing trends in mobile telecommunications. In this case, Penttinen focuses on the development and employment of 5G mobile networks and, more specifically, the challenges inherent in adjusting to new global standardization requirements and in maintaining a high level of security even as mobile technology expands to new horizons. The text discusses, for example, the Internet of Things (IoT) and how to keep networks reliable and secure when they are constantly accessed by many different devices with varying levels of user involvement and competence. 5G Explained is primarily designed for specialists who need rapid acclimation to the possibilities and concerns presented by 5G adoption. Therefore, it assumes some prior knowledge of mobile communications. However, earlier chapters are structured so that even relative newcomers will gain useful information. Other notable features include: Three modules each consisting of three chapters: Introduction, Technical Network Description and Planning of Security and Deployment Comprehensive coverage of topics such as technical requirements for 5G, network architecture, radio and core networks and services/applications Discussion of specific security techniques in addition to common-sense guidelines for planning, deploying, managing and optimizing 5G networks 5G Explained offers crucial updates for anyone involved in designing, deploying or working with 5G networks. It should prove a valuable guide for operators, equipment manufacturers and other professionals in mobile equipment engineering and security, network planning and optimization, and mobile application development, or anyone looking to break into these fields. This newly revised second edition provides a current, comprehensive treatment of the subject with a focus on applying practical knowledge to real-world networks. It includes a wealth of important updates, including discussions on backhaul capacity limitations, ethernet over radio, details on the latest cellular radio standards (2.5G, 3G, and 4G). You also learn about recent changes in spectrum management, including the availability of unlicensed bands and new mm band frequencies between 70 and 90 GHz. Additionally, you find more details on the fundamentals of antennas, especially at VHF/UHF levels. Written in an easy-to-understand style, the author provides practical guidelines based on hands-on experience. You find valuable assistance in designing and planning SDH/SONET broadband networks, wireless local loop networks, and backhaul for mobile radio networks. Moreover, this authoritative volume covers frequency planning for radio networks, digital radio equipment characteristics, and fading in radio systems. Using practical case studies, Microwave Radio Transmission Design Guide, Second Edition gives you proven advice that helps you save time and money when developing new networks, and reduces your risk of encountering problems during design and planning. This book provides an accessible and comprehensive tutorial on the key enabling technologies for 5G and beyond, covering both the fundamentals and the state-of-the-art 5G standards. The book begins with a historical overview of the evolution of cellular technologies and addresses the questions on why 5G and what is 5G. Following this, six tutorial chapters describe the fundamental technology components for 5G and beyond. These include modern advancements in channel coding, multiple access, massive multiple-input and multiple-output (MIMO), network densification, unmanned aerial vehicle enabled cellular networks, and 6G wireless systems. The second part of this book consists of five chapters that introduce the basics of 5G New Radio (NR) standards developed by 3GPP. These include 5G architecture, protocols, and physical layer aspects. The third part of this book provides an overview of the key 5G NR evolution directions. These directions include ultra-reliable low-latency communication (URLLC) enhancements, operation in unlicensed spectrum, positioning, integrated access and backhaul, air-to-ground communication, and non-terrestrial networks with satellite communication. This practical hands-on new resource presents LTE technologies from end-to-end, including network planning and the optimization tradeoff process. This book examines the features of LTE-Advanced and LTE-Advanced Pro and how they integrate into existing LTE networks. Professionals find in-depth coverage of how the air interface is structured at the physical layer and how the related link level protocols are designed and work. This resource highlights potential 5G solutions as considered in releases 14 and beyond, the migration paths, and the challenges involved with the latest updates and standardization process. Moreover, the book covers performance analysis and results, as well as SON specifications and realization. Readers learn about OFDMA, and how DFT is used to implement it. Link budgeting, parameter estimations, and network planning and sizing is explained. Insight into core network architecture is provided, including the protocols and signaling used for both data and voice services. The book also presents a detailed chapter on the end-to-end data transfer optimization mechanisms based on the TCP protocol. This book provides the tools needed for network planning and optimization while addressing the challenges of LTE and LTE-advanced networks. Written by award-winning engineers whose research has been sponsored by the U.S. National Science Foundation (NSF), IBM, and Cisco's University Research Program, Wireless Sensor Networks: Principles and Practice addresses everything product developers and technicians need to know to navigate the field. It provides an all-inclusive examinaEssential

reference providing best practice of LTE-A, VoLTE, and IoT Design/deployment/Performance and evolution towards 5G This book is a practical guide to the design, deployment, and performance of LTE-A, VoLTE/IMS and IoT. A comprehensive practical performance analysis for VoLTE is conducted based on field measurement results from live LTE networks. Also, it provides a comprehensive introduction to IoT and 5G evolutions. Practical aspects and best practice of LTE-A/IMS/VoLTE/IoT are presented. Practical aspects of LTE-Advanced features are presented. In addition, LTE/LTE-A network capacity dimensioning and analysis are demonstrated based on live LTE/LTE-A networks KPIs. A comprehensive foundation for 5G technologies is provided including massive MIMO, eMBB, URLLC, mMTC, NGCN and network slicing, cloudification, virtualization and SDN. Practical Guide to LTE-A, VoLTE and IoT: Paving the Way Towards 5G can be used as a practical comprehensive guide for best practices in LTE/LTE-A/VoLTE/IoT design, deployment, performance analysis and network architecture and dimensioning. It offers tutorial introduction on LTE-A/IoT/5G networks, enabling the reader to use this advanced book without the need to refer to more introductory texts. Offers a complete overview of LTE and LTE-A, IMS, VoLTE and IoT and 5G Introduces readers to IP Multimedia Subsystems (IMS) Performs a comprehensive evaluation of VoLTE/CSFB Provides LTE/LTE-A network capacity and dimensioning Examines IoT and 5G evolutions towards a super connected world Introduce 3GPP NB-IoT evolution for low power wide area (LPWA) network Provide a comprehensive introduction for 5G evolution including eMBB, URLLC, mMTC, network slicing, cloudification, virtualization, SDN and orchestration Practical Guide to LTE-A, VoLTE and IoT will appeal to all deployment and service engineers, network designers, and planning and optimization engineers working in mobile communications. Also, it is a practical guide for R&D and standardization experts to evolve the LTE/LTE-A, VoLTE and IoT towards 5G evolution. The Institute of Electrical and Electronics Engineers (IEEE) Communications Society designed the IEEE wireless communication engineering technologies (WCET) certification program to address the wireless industry's growing need for communications professionals with practical problem-solving skills in real-world situations. Individuals who achieve this prestigious certification are recognized as possessing the required knowledge, skill, and abilities to meet wireless challenges in various industry, business, corporate, and organizational settings. Presenting contributions from 50 wireless communications experts from all corners of the world, Get Certified: A Guide to Wireless Communication Engineering Technologies provides an authoritative review of the seven areas of expertise covered on WCET exam. It supplies cutting-edge coverage of the broad range of topics related to wireless communications to facilitate the technical competency required to achieve certification. The text outlines industry agreements, standards, policies, and regulations including licenses and permits, health and safety, and compliance. With coverage ranging from basic concepts to research-grade material and future directions, the book provides a general overview of the evolution of wireless technologies, their impact on the profession, and common professional best practices. The book's well-structured presentation along with suggestions for further information and study, make it an indispensable guide for attaining WCET certification and a comprehensive source of reference for wireless professionals to keep pace with ever-evolving technology and standards in the field.

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