

1. Record Nr.	UNINA9910828591803321
Autore	Wong K. Daniel
Titolo	Fundamentals of wireless communication engineering technologies // K. Daniel Wong
Pubbl/distr/stampa	Hoboken, NJ, : John Wiley & Sons, c2012
ISBN	1-283-40078-2 9786613400789 1-118-12111-2 1-118-12109-0 1-118-12108-2
Edizione	[1st edition]
Descrizione fisica	1 online resource (564 p.)
Collana	Wiley series on information and communication technology ; ; 98
Classificazione	TEC041000
Disciplina	384.5
Soggetti	Wireless communication systems Wireless communication systems - Examinations
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	FOREWORD xix -- PREFACE xxi -- I PRELIMINARIES -- 1 Introduction 3 -- 1.1 Notation 4 -- 1.2 Foundations 4 -- 1.3 Signals and Systems 12 -- 1.4 Signaling in Communications Systems 27 -- II RADIO FREQUENCY, ANTENNAS, AND PROPAGATION -- 2 Introduction to Radio Frequency, Antennas, and Propagation 37 -- 2.1 Mathematical Preliminaries 37 -- 2.2 Electrostatics, Current, and Magnetostatics 41 -- 2.3 Time-Varying Situations, Electromagnetic Waves, and Transmission Lines 46 -- 2.4 Impedance 56 -- 2.5 Tests and Measurements 57 -- 3 Radio-Frequency Engineering 63 -- 3.1 Introduction and Preliminaries 64 -- 3.2 Noise 70 -- 3.3 System Issues Related to Nonlinearity 80 -- 3.4 Mixing and Related Issues 85 -- 3.5 Oscillators and Related Issues 87 -- 3.6 Amplifiers and Related Issues 89 -- 3.7 Other Components 90 -- 4 Antennas 93 -- 4.1 Characterization 94 -- 4.2 Examples 105 -- 4.3 Antenna Arrays 111 -- 4.4 Practical Issues: Connecting to Antennas, Tuning, and so on 122 -- 5 Propagation 125 -- 5.1 Electromagnetic Wave Propagation: Common Effects 126 -- 5.2 Large-Scale Effects in Cellular Environments 132 -- 5.3 Small-Scale Effects in Cellular Environments 137 -- 5.4

Incorporating Fading Effects in the Link Budget 148 -- III WIRELESS ACCESS TECHNOLOGIES -- 6 Introduction to Wireless Access Technologies 159 -- 6.1 Review of Digital Signal Processing 160 -- 6.2 Digital Communications for Wireless Access Systems 169 -- 6.3 The Cellular Concept 173 -- 6.4 Spread Spectrum 177 -- 6.5 OFDM 185 -- 7 Component Technologies 193 -- 7.1 Medium Access Control 193 -- 7.2 Handoff 202 -- 7.3 Power Control 208 -- 7.4 Error Correction Codes 210 -- 8 Examples of Air-Interface Standards: GSM, IS-95, WiFi 219 -- 8.1 GSM 220 -- 8.2 IS-95 CDMA 226 -- 8.3 IEEE 802.11 WiFi 235 -- 9 Recent Trends and Developments 249 -- 9.1 Third-Generation CDMA-Based Systems 249 -- 9.2 Emerging Technologies for Wireless Access 253 -- 9.3 HSPA and HRPD 258 -- 9.4 IEEE 802.16 WiMAX 262 -- 9.5 LTE 270 -- 9.6 What's Next? 273.

IV NETWORK AND SERVICE ARCHITECTURES -- 10 Introduction to Network and Service Architectures 277 -- 10.1 Review of Fundamental Networking Concepts 278 -- 10.2 Architectures 285 -- 10.3 IP Networking 290 -- 10.4 Teletraffic Analysis 301 -- 11 GSM and IP: Ingredients of Convergence 307 -- 11.1 GSM 308 -- 11.2 VoIP 315 -- 11.3 QoS 323 -- 12 Toward an All-IP Core Network 333 -- 12.1 Making IP Work with Wireless 333 -- 12.2 GPRS 341 -- 12.3 Evolution from GSM to UMTS up to the Introduction of IMS 346 -- 12.4 IP Multimedia Subsystem 354 -- 12.5 Other Networks 362 -- 13 Service Architectures, Alternative Architectures, and Looking Ahead 367 -- 13.1 Services 367 -- 13.2 Service Architectures 371 -- 13.3 Mobile Ad Hoc Networks 379 -- 13.4 Mesh, Sensor, and Vehicular Networks 384 -- V MISCELLANEOUS TOPICS -- 14 Network Management 393 -- 14.1 Requirements and Concepts 393 -- 14.2 Network Management Models 394 -- 14.3 SNMP 397 -- 15 Security 415 -- 15.1 Basic Concepts 415 -- 15.2 Cryptography 419 -- 15.3 Network Security Protocols 422 -- 15.4 Wireless Security 432 -- 16 Facilities Infrastructure 443 -- 16.1 Communications Towers 444 -- 16.3 Additional Topics 462 -- 17 Agreements, Standards, Policies, and Regulations 467 -- 17.1 Agreements 468 -- 17.2 Standards 469 -- 17.3 Policies 478 -- 17.4 Regulations 479 -- EXERCISE SOLUTIONS 487 -- APPENDIX A: SOME FORMULAS AND IDENTITIES 497 -- APPENDIX B: WCET GLOSSARY EQUATION INDEX 499 -- APPENDIX C: WCET EXAM TIPS 501 -- APPENDIX D: SYMBOLS 503 -- APPENDIX E: ACRONYMS 509 -- INDEX 519.

Sommario/riassunto

"There is a growing need for books and preparatory materials that can help wireless engineers prepare for the IEEE WCET (Wireless Communications Engineering Technologies) certification exam. This book offers a broad exposure to the wireless communications field as it is practiced in the real world, providing the necessary practical, hands-on knowledge. The author, who was involved with the certification program development, shares in-depth knowledge and insight on the WCET exam. Readers planning to take the exam, engineers seeking to increase their knowledge of WCET, and graduate students and professors in wireless communications will find this guide invaluable"--
