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ISBN	1-63081-449-0
Descrizione fisica	1 online resource (xix, 407 pages)
Disciplina	621.3827
Soggetti	Optical communications
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Written by a leading expert in the field, this book provides a comprehensive introduction to the fundamental concepts of transport and data networks. This resource examines backbone network architectures and functions. The evolution, key components, and techniques of telecommunication networks are presented, including voice and data transmission, fiber optic communication and optical link design. This book explores the photonic network architecture and includes chapters on transport networks, synchronous optical networks, optical transport networks, and dense wavelength division multiplexing. Professionals are brought up-to-speed with the applications and architecture of next generation photonic networks, and are provided with references for all applicable standards. This book offers insight into reality technologies, including virtual reality, augmented reality, mixed reality, and telecommunication infrastructure challenges. Details on the photonic circuit switched network architecture and photonic packet switched core network are presented. The book concludes with a full treatment of the virtualization and software defined networking ecosystem as well as a discussion on future developments. Publisher abstract.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Engineering Optical Networks; Contents; Acknowledgments; Part I Introduction to Telecom Networks: The Conceptual Framework; 1 Telecommunication Networks: Evolution, Key Components, and Techniques; 1.1 Chapter Objectives; 1.2 Evolution of Telecommunication Networks; 1.3 PSTN; 1.3.1 Basic Terminology; 1.4 PSTN Components; 1.4.1 Class 1 Switch; 1.4.2 Class 2 Switch; 1.4.3

Class 3 Switch; 1.4.4 Class 4 Switch; 1.4.5 Class 5 Switch; 1.4.6 Transmission Facilities/Circuits; 1.4.7 Network; 1.4.8 Transmission Media and Signals; 1.5 PSTNs: Advancements; 1.6 Summary; 1.7 Review; 1.7.1 Review Questions.  
1.7.2 Exercises1.7.3 Research Activities; 1.8 Referred Standards; 1.9 Recommended Reading; 1.9.1 Books; 1.9.2 URLs; References; 2 Voice and Data Transmission; 2.1 Chapter Objectives; 2.2 Introduction; 2.3 Multiplexing; 2.4 PCM; 2.5 Quantization Noise; 2.6 Companding; 2.7 Differential PCM; 2.8 Adaptive DPCM; 2.9 Summary; 2.10 Review; 2.10.1 Review Questions; 2.10.2 Exercises; 2.10.3 Research Activities; 2.11 Referred Standards; 2.12 Recommended Reading; 2.12.1 Books; 2.12.2 URLs; References; 3 Fiber-Optic Communication Fundamentals; 3.1 Chapter Objectives; 3.2 Introduction.  
3.3 Basics of Light Transmission3.3.1 Modal Propagation; 3.4 Optical Fiber Classification; 3.5 Standard Optical Fiber Designs; 3.6 Types of Optical Fibers; 3.7 Fiber Design Specifications; 3.8 Fiber-Laying Techniques; 3.9 Cable Preparation, Splicing, and Termination; 3.9.1 Cable Preparation; 3.9.2 Splicing; 3.9.3 Fiber Termination; 3.10 Summary; 3.11 Review; 3.11.1 Review Questions; 3.11.2 Exercises; 3.11.3 Research Activities; 3.12 Referred Standards; 3.13 Recommended Reading; 3.13.1 Books; 3.13.2 URLs; References; Selected Bibliography; 4 Optical Link Design; 4.1 Chapter Objectives.  
4.2 Optical Transmitters4.2.1 Optical Sources; 4.2.2 Modular Optical Interfaces; 4.2.3 Transmitter Design Parameters; 4.3 Optical Receivers; 4.4 Optical Modulation Techniques; 4.5 Optical Connectors; 4.6 Link Budgeting; 4.7 Safety Guidelines; 4.7.1 Causes of Injury; 4.7.2 Maximum Permissible Exposure; 4.7.3 AEL; 4.7.4 Fiber-Handling Techniques; 4.8 Summary; 4.9 Review; 4.9.1 Review Questions; 4.9.2 Exercises; 4.9.3 Research Activities; 4.10 Referred Standards; 4.10 Recommended Reading; 4.10.1 Books; 4.10.2 URLs; References.  
Part II: Photonic Network Architecture: The Immediate Past and Present5 Transport Networks: Prologue; 5.1 Chapter Objectives; 5.2 Introduction; 5.3 Asynchronous Networks; 5.3.1 Bit Stuffing; 5.4 PDH; 5.4.1 CCITT Recommendations; 5.4.2 Interfaces; 5.4.3 Basic Frame Structures; 5.5 Ethernet Over PDH; 5.6 Asynchronous Network Limitations; 5.7 SONET: Evolution; 5.8 Summary; 5.9 Review; 5.9.1 Review Questions; 5.9.2 Exercises; 5.9.3 Research Activities; 5.10 Referred Standards; 5.11 Recommended Reading; 5.11.1 Books; 5.11.2 URLs; 6 Synchronous Optical Networks; 6.1 Chapter Objectives.

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