

Books

Basic Data Communications: A Comprehensive Overview, William J. Beyda, Prentice Hall, Inc., Englewood Cliffs, NJ, 1989. 268 pp. (ISBN 0-13-058421-5).

The author aims this textbook at the wedge between those books intended for advanced electrical engineering students and those intended for persons interested in the business aspects of telecommunications. The reader is expected to be able to make decisions relative to the selection, integration, and design of telecommunication equipment.

The author has created an easy-to-read text that is a very well presented introduction to the physical aspects of communications. I would have liked to see more material on network functions and descriptions of various levels of architecture. The author covers the detailed physical aspects of telecommunications very well but is a little lacking in describing the data management aspects of networks.

The first four chapters provide a basic introduction of telephony concepts. These chapters start with the basic telephone connection and lead the reader through discussion of baseband and broadband transmission. Also discussed are the differences between amplitude, phase, and frequency modulation. Through the discussion, the reader is taken through central office and PBX switching, and is given an introduction to digital transmission and data interfaces.

Chapter 5 has a concise description of multiple devices, multiple networks, and multiplexers. This chapter provides a clearly written section on character and bit interleaving and an understanding of multiplexing.

Chapter 6 summarizes the communication techniques that are commonly used to prevent errors in digital transmission. The author touches the proce-

dures of Hamming codes, check sums, and cyclical redundancy check. Security of transmission is discussed and includes an excellent easy-to-read description of encryption and decryption techniques.

The last portion of the book, chapters 7 to 10, is concerned with networks. An introduction is given to the Open System Interconnection (OSI) model and is compared with equivalent layers of SNA. The description of SNA is brief and easy to understand.

The standard topologies for local area networks are discussed, but the book falls short in this networking discussion. Detailed descriptions of the functions in nodes would enhance the book for a nonengineering student. For example, it would be enlightening to include a description of functions performed in a front-end communications controller and the separation of tasks between the controller and host processor. A classical discussion of distributed-versus-centralized data would enhance the text at this point, as well.

The book concludes with a discussion of the integration of digit and wire transmission. The T-1 standard Integrated Service Digital Network (ISDN) is discussed as an evolving set of standards for digital network for carrying voice and data communications.

The book is well written as a text, and each chapter has sets of exercises that can be used as standard assignments.

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IBM Systems Journal
Thornwood
New York

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