

# Communications Fundamentals

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## LIDO TELECOMMUNICATIONS ESSENTIALS®

One of the biggest challenges facing professionals in the information technologies and telecommunications (IT&T) sector is conquering the dense, seemingly endless, yet absolutely essential language of telecommunications. During Part 1, telecommunications fundamentals are presented in layman's terms, laying the foundation for understanding the basic principles of telecommunications transmission and networking. The focus is on developing an understanding of the forces driving the revolutionary change in infrastructures worldwide, on providing clear explanations of communications fundamentals, the differences between circuit and packet switching, the nature of transmission media, and the architecture of the public switched telephone network (PSTN) infrastructure. Part 1 will result in an appreciation and understanding of the fundamental principles of telecommunications and the supporting infrastructures.

## UNDERSTANDING TELECOMMUNICATIONS

- \* Measurements of the Digital World
  - Processing power, storage and bandwidth
- \* Changing User Profile, Traffic Trends, Applications Evolution
  - Adapting to changing traffic patterns
- \* Convergence
  - What and why
- \* The New Public Network
  - Requirements and characteristics

## TECHNOLOGY BASICS

- \* Introduction
  - Definitions
- \* Transmission Fundamentals
  - Transmission lines, types of network connections
- \* The Electromagnetic Spectrum and Bandwidth
  - Definitions, telecommunications spectrum, bandwidth
- \* Analog vs. Digital Transmission
  - Principles and comparisons
- \* Multiplexing
  - FDM, TDM, intelligent muxes, inverse multiplexing, CDM, WDM
- \* Standards Organizations and Political and Regulatory Forces

## TRANSMISSION SYSTEMS: CHARACTERISTICS & APPLICATIONS

- \* Transmission Media Definitions & Measurements
- \* Twisted-Pair Copper Cable
- \* Coaxial Cable
- \* Microwave
- \* Satellite
- \* Fiber Optics

## ESTABLISHING COMMUNICATIONS CHANNELS

- \* Networking Modes
- \* Switching Modes
  - \* What is Circuit Switching
  - \* What is Packet Switching
- \* The PSTN vs the Internet

## PUBLIC SWITCHED TELEPHONE NETWORK

- \* PSTN Infrastructure
  - \* Switching Hierarchy
  - \* Transport Infrastructure
  - \* Signaling System #7
  - \* Intelligent Network (IN)
- \* SS7 and Next-Generation Networks

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