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5 days Workshop: Telecommunication System Engineering

Telecom Engineering
Brussels (Belgium)
17 - 21 Feb 2025

UK Traininig
PARTNER

5 days Workshop: Telecommunication System Engineering

Ref: 321819_147590 **Date:** 17 - 21 Feb 2025 **Location:** Brussels (Belgium) **Fees:** 4400 Euro

Introduction

This course describes the basic concepts of key technologies prevalent in the industry, it presents authoritative coverage of such important current topics as cellular radio, asynchronous transfer mode ATM, broadband technologies, and network management. It describes the future applications of telecommunications networks and the future direction of the industry.

Course Objectives of Telecommunication system

1. Basic Telephony
2. Switching in an Analog Environment
3. Introduction to Transmission for Telephony
4. The Design of Long-Distance Links
5. Digital Transmission Systems
6. Digital Switching and Networks
7. Introduction to Data Communications
8. Data Networks
9. Network Management

Course Outlines of Telecommunication system

Day 1

Basic Telephony

- The Simple Telephone Connection
- Sources and Sinks
- Telephone Networks: Introductory Terminology
- Essentials of Traffic Engineering
- Bases of Network Configurations
- Variations in Traffic Flow
- Quality of Service

Switching in an Analog Environment

- Numbering, One Basis of Switching
- Concentration and Expansion
- Basic Switching Functions

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- Introductory Switching Concepts
- Grading
- The Crossbar Switch
- System Control
- Telephone Traffic Measurement
- Dial-Service Observation

Day 2

Introduction to Transmission for Telephony

- Purpose and Scope
- The Three Basic Impairments to Voice Channel
- Transmission
- Two-Wire and Four-Wire Transmission
- Multiplexing
- Shaping of a Voice Channel and its Meaning in
- Noise Measurement Units

The Design of Long-Distance Links

- The Bearer
- Introduction to Radio Transmission
- Design Essentials for Line-of-Sight Microwave System
- Satellite Communications
- Fiber-Optic Communication Links

Day 3

Digital Transmission Systems

- Digital versus Analog Transmission
- Basis of Pulse-Code Modulation
- Development of a Pulse-Code Modulation Signal
- PCM Line Codes
- Regenerative Repeaters
- Signal-to-Gaussian-Noise Ratio on Pulse-Code
- Modulation Repeated Lines
- PCM System Enhancements
- Digital Loop Carrier
- SONET and SDH
- Summary of Advantages and Disadvantages of Digital Transmission

Digital Switching and Networks

- Advantages and Issues of PCM Switching When
- Compared to Its Analog Counterpart
- Approaches to PCM Switching

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- Digital Switching Concepts
- The Digital Network

Day 4

Introduction to Data Communications

- Removing Ambiguity—Binary Convention 366
- Coding
- Errors in Data Transmission
- The DC Nature of Data Transmission
- Binary Transmission and the Concept of Time
- Data Interface—The Physical Layer
- Digital Transmission on an Analog Channel

Data Networks

- Applications
- Initial Design Considerations
- Data Terminals, Workstations, PCs, and Servers
- Network Topologies and Configurations
- Overview of Data Switching
- Packet Networks and Packet Switching
- Interior Gateway Routing Protocol
- Circuit Optimization
- Data Network Operation
- Protocols

Day 5

Network Management

- X.25: A Packet-Switched Network Access
- TCP/IP and Related Protocols
- TCP/IP and Data-Link Layers 450
- The IP Routing Function 452
- The Transmission Control Protocol TCP
- Brief Overview of Internet Protocol Version 6 IPV6
- Virtual Private Networks VPNs
- Specialized VPN Internet Protocols 476
- Voice-Over IP
- Fault, configuration, performance, security, and accounting Management
- Survivability
- Network Management from a PSTN Perspective
- Network Management Systems in Enterprise Networks
- Telecommunication Management Network TMN

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