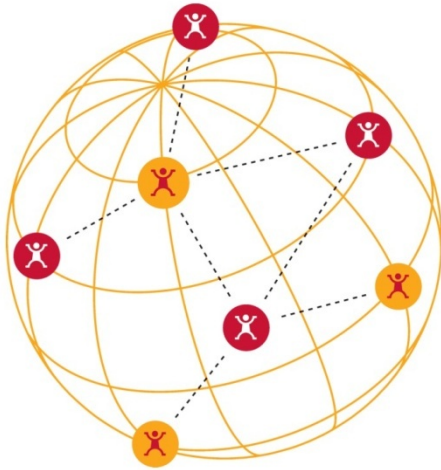


TRAINING PROGRAM OUTLINE



ENG-202E PACKET SWITCHING CONCEPTS

DESCRIPTION

A 5-day Training Program to provide participants with a comprehensive understanding of packet switching concepts, access methods, equipment, protocols, and implementation requirements.

OBJECTIVES

- Introduce the fundamental concepts of digital switching and transmission essential to understanding packet switching
- Review the Open System Interconnection (OSI) reference model
- Provide a comprehensive understanding of packet switching concepts
- Describe the interfaces, equipment and protocols required to implement packet switching networks
- Present packet switching technologies that are being used in today's telecommunications environment



TOPICS

- Basic principles of switching
 - Concepts and elements of digital switching and transmission
 - Packet vs. circuit switching
- Packet switching theory of operation characteristics
 - Traffic characteristics
 - Network operation
 - Addressing
- Types of packet switching
 - Virtual circuit packet switching
 - Datagram packet switching
- Virtual circuit packet switching protocols
 - X.25
 - Frame Relay
 - ATM
 - MPLS
 - TCP
- Datagram packet switching protocols
 - Ethernet
 - UDP
 - IP and the Internet
- xDSL switching technologies
- Application of virtual circuit packet switching “riding” on a datagram packet network
- Open System Interconnection (OSI) reference model
 - History
 - Benefits and uses
 - Networking sub-layers, layers and layer groupings
 - Data encapsulation



- Data transmission through the OSI model
- X.25 – An example in relation to the OSI model
 - X.25 main characteristics and applications
 - Physical layer
 - X.21 interface
 - X.21 bis interface
 - Frame (link) layer
 - Frame structure
 - Link Access Procedure Balanced (LAPB)
 - MultiLink Procedure (MLP)
 - Error detection/error correction
 - Packet layer and Packet Layer Protocol (PLP)
 - Packet structure
 - Logical channel assignments
 - Call and data procedures
 - Addressing X.21 and X.75
- Packet switching operation
 - Internal link blocking
 - Output port contention
 - Head of line blocking
 - Multicasting
 - Call splitting
- Switch architecture classification
 - Time division switching
 - Space division switching
 - Buffering strategies
- Switch types
 - Input buffered switches
 - Output buffered switches
 - Completely shared buffer switches
 - Banyan based switches
 - High performance switch architectures



- Switch and router networks
 - Layer 3 router networks vs. layer 2 switch networks

TARGET AUDIENCE

- Telecommunications managers and personnel responsible for or working in fields related to the implementation of packet switching networks
- Managers looking to complement their skill-set by gaining a good understanding of packet switching concepts

METHODOLOGY

Our Training Programs combine expert presentations, workshops, case studies and discussions on real-life situations faced by participants. Complete training material is provided to all participants for future reference and follow-up action plans.

LOCATION

Our Training Programs are held at regular intervals in selected cities around the world. Upon request, our expert trainers can lead Training Programs at the location of your choice. If interested, please contact us at training@neotelis.com.



EXPERTISE

Neotelis provides consulting and training services to telecommunications organizations worldwide. Its team of experts has trained thousands of executives and managers working for operators, regulators, policy-makers and governments in over 100 countries around the world.

