

Course Description

The course introduces you to the building blocks of IPTV. You will learn what IPTV is and what it isn't and why companies in the telecommunications industry are engaging in IPTV deployments. You will also learn about video production and distribution and the services offered in the IPTV product. This course describes the technical architecture of the IPTV solution and how an IPTV provider's operational processes will change. This course also covers in-depth comparisons, trends, technologies used and the future of IPTV, plus alternate broadcast approaches currently used in the cable and satellite industry.

This course will also provide in-depth details for modern television broadcast systems and infrastructures, with particular focus given to the delivery of TV over the Internet. This will encompass both IPTV and Video on Demand (VoD). The course is designed to give students practical and real-world experience to this technology, equipment and network architectures that are being utilized to deploy these services. Lastly, this course provides an incredible comparison to other broadcast technologies and markets today.

Students Will Learn

- Identify why Telcos must offer an IPTV Solution
- Describe IPTV and its Components
- Describe the Service Components of the IPTV Solution
- Describe the Technical Requirements and their Functionality
- Describe the Operational Process Required to Support IPTV by the Telco
- Provide an Overview of Competitive Approaches
- Understand the Equipment and Software used to Deliver IPTV and VoD
- Describe the Architecture of these Modern TV Services
- Compare Cable, Over-Air Terrestrial, Satellite and Internet

- And much more...

Target Audience

This course is intended for Executive Management, Presidents, CEOs, CTOs, Supervisors, Managers and anyone inquiring into the world of IPTV Systems.

Prerequisites

A basic understanding of telecommunications or equivalent knowledge. This information can be obtained in our courses below

TeleCom Networks Today II
Basic Telephony & Telecom Electronics

Course Outline

Module 1: IPTV Course Overview

- What IPTV Is
- What IPTV Is Not
- IPTV Benefits
- The Technology

Module 2: Telco Evolution & IPTV

- Telco Industry Dynamics
- Triple Play Strategy
- IPTV Challenges

- The Players
- The Trends

Module 3: Video & Audio Processing

- Video Recording, Storage, & Distribution
- IPTV Video Distribution Process
- Viewing IP Video

Module 4: IPTV Service Offerings

- Channel Packages
- Audio Services
- Interactive Program Guide (IPG)
- Pay Per View (PPV)
- Video on Demand (VOD)
- Video Security
- Personal Video Recording (PVR)
- Additional Service Features

Module 5: IPTV Technical Architecture

- The Evolution to IP
- Technical Components Overview
- Head End
- IPTV Middleware
- Broadband Core Network
- Access Network
- Home Network

Module 6: IPTV Operational Processes

- Service Activations
- Service Delivery
- Customer Support
- Network Operations

- Content Management
- IPTV Service Operations Manager

Module 7: IPTV and Alternate Broadcast Approaches

- Cable TV Solution
- Satellite TV Solution
- IPTV Solution
- Future Trends

Module 8: Television Architecture and Evolution

- Introduction to Cable Broadcasting
- The Signals
- Analog Television
- Digitally-Compressed Television
- Digital Modulation: MPEG Hierarchy, MPEG1, MPEG2, MPEG4
- Digital Video Broadcasting
- Cable Networking Protocols
- Over-the-air broadcasting

Module 9: Cable Television Architecture

- Head-ends
- Signal Reception
- Head-end Signal Processing
- Head-end Operation
- Broadband Distribution Systems
- Coaxial RF Technology
- Coaxial Distribution Design
- Linear Fiber-Optic Signal Transportation
- Wavelength-Division Multiplexing
- Linear Microwave Signal Transportation
- End-to-End Performance
- Upstream Issues
- System Architecture
- Service-Related Architecture Requirements

- Architectural Elements and Examples
- Digital Fiber Modulation and Deep Fiber Architectures
- Network Reliability

Module 10: Transmission for Next Generation Digital Systems

- Wavelength-Division Multiplexing
- Linear Microwave Signal Transportation
- Digital distribution Systems
- Linear Fiber-Optic Signal Transportation
- Fiber Optic Transmission
- Passive Optical Fiber (PON)
- Wavelength Division Multiplexing: CWDM and DWDM
- End-to-End Performance
- Upstream Issues

Module 11: TV Distribution Systems

- Terrestrial UHF/VHF Broadcast Delivery
- Satellite Television Delivery
- Cable Television Delivery
- IPTV Delivery
 - - From head-end to viewer
 - - Set-top Box Issues
 - - Next Generation Media Players
- IPTV Service Features
- Encoders: MPEG-2, MPEG-4, DVB-T, DVB-H

Module 12: IPTV Network Architecture

- Applications and their service needs
- TV Program Distribution
- Components of IPTV Service Network
 - Video Head End (HVE), Video Hub Office (VHO) , Video Serving Office (VSO)
- Streamers
- Routers and Switches
- Distribution Networks

- Core Networks
- Access Networks: Wired vs Wireless
- DSL Technology: ADSL, VDSL
- Satellite Access
- Fiber and Copper Loops
- Set-top Boxes
- Media Player Applications
- Video-on-demand
- Integration with Telephones and Internet Access: Triple Play

Module 13: Next Generation Network Technology

- Internet Protocol (IP) Delivery
- Internet delivery options
- Studio to distributor delivery
- IP Delivery mechanisms
- Unicast vs Multicast
- Multicasting Addressing and Protocol Issues
- PIM and IGMP
- Quality of Service Issues
- MPLS
- 21st Century Network Implications
- Triple Play Networks
- Internet TV Portal

Module 14: The Customer Interface: Set-top Boxes

- Analog Video Reception
- Digital Video Reception
- Migration issues from Analogue to Digital
- Consumer Electronics Interface
- Equipment Compatibility
- Networking Interfaces
- Decoding Mechanisms

Module 15: Security: Protected and Conditional Access

- Protected Broadcast Driver Architecture
- Asymmetric Public Keys
- Symmetric Keys
- Revocation
- Windows Media Digital Rights Management
- Watermarking

Module 16: Industry Trends

- Transmission innovations
- HDTV and Improved Quality
- Convergence Protocols

Delivery Method

Instructor led with numerous Case Studies and exercises.

Equipment Requirements

(This apply's to our hands-on courses only)

BTS always provides equipment to have a very successful Hands-On course. BTS also encourages all attendees to bring their own equipment to the course. This will provide attendees the opportunity to incorporate their own gear into the labs and gain valuable training using their specific equipment.

Course Length

1 Day