

# Emerging Technologies Today



## Course Description

Keeping up with all the Technology changes and demands of Today, is always a pressing demand. BTS provides an extensive look into the Emerging Technologies of Today.

The Internet is changing the way applications are used mobility and bandwidth are just never enough. The aggressive deployment of FTTx, Wireless, VoIP, Softswitching, and an IP core networks have significantly changed metro and wide area communications, as we know it.

The focus of this course is to provide an overall scope of these complex technologies as well as defining all the pieces and how they work together in Today's Technologies.

## Students Will Learn

- **Emerging Technologies Overview "The Big Picture"**
- **Terms & Acronyms**
- **Architectures & Applications**
- **Passive Optical Networks**
- **xDSL**
- **Wireless**
- **WiMAX**
- **Powerline Broadband**
- **Satellite**
- **IPTV / Triple Play**
- **Voice Over IP (VoIP)**
- **IP Networking (IPv4, IPv6, IPVPN)**
- **Cellular Networks (3G, CDMA, GSM...)**
- **Ethernet Today (MetroE, Ethernet Over Fiber/SONET/MPLS/WDM/RPR)**
- **Future Trends**

## Target Audience

This course is geared for anyone working in the Telecommunications, Networking and/or Converging technologies. This will provide a very well rounded foundation to build-on these emerging technologies.

## Prerequisites

A basic understanding of Telecommunications is required, this can be obtained in our courses

-Hands-On Basic Telephony & TeleCom Electronics

## Course Outline

### Module 1: Introduction

- \* Emerging Technology Definition
- \* Next Generation Target Architecture

### Module 2: Passive Optical Networks (PON)

- \* Broadband Passive Optical Network (BPON)
- \* Gigabit Passive Optical Network (GPON)
- \* Other PON Architectures: Ethernet PON, WDM PON

### Module 3: Competitive Access Architectures

- \* ADSL & VDSL
- \* Fixed Wireless: WiFi, WiMAX, 2-way Satellite
- \* Broadband over Powerline

### Module 4: Video

- \* Video Basics
- \* MPEG Compression
- \* Video on Demand
- \* Telco IPTV Architecture

### Module 5: Emerging Cellular Networks

- \* Evolution to 3G Technologies
  - o CDMA2000: 1x, 1xEV-DO, 1xEV-DO Rev A
  - o GSM/UMTS: EDGE GPRS, UMTS/W-CDMA, HSDPA
- \* 4G Direction and Technology
- \* Advanced Wireless Data Services
- \* Wireless Video Services

### Module 6: Voice over Internet Protocol (VoIP)

- \* VoIP Architecture
- \* Session Initiation Protocol (SIP)

- \* MEGACO/H.248
- \* Residential & Enterprise VoIP
- \* Softswitch and IP Multimedia System (IMS)

### **Module 7: Wide Area Networking**

- \* Optical Networking and DWDM
- \* Metro Ethernet
- \* Multiprotocol Label Switching (MPLS)

### **Module 8: IP Networking**

- \* IPv4 Concerns
- \* IPv6 Solutions and Status
- \* IP Virtual Private Networks (IPVPN)

## **Delivery Method**

Instructor led with numerous 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**

2 Days