

# ADSL and other Broadband Technologies

## Course Introduction

**58% of today's fixed Broadband connections are made using Digital Subscriber Line (DSL) technology – which still has a huge part to play in the growth of the Internet, not least in emerging Internet countries. This interactive 2-day classroom training event is designed to give participants a complete end-to-end view of how the popular ADSL Access technology functions – including its capabilities and limitations.**

**The Course also considers alternative Fixed and Mobile Broadband options and their relative benefits before taking a glimpse at the future trends of Access technologies – and the Internet itself.**

## Course Objectives

*After attending the training, participants will be able to*

- Understand the architecture, topologies and terminologies of ADSL and the DSL family
- Describe how ADSL works and recognize its benefits and limitations
- Have an appreciation of alternative Fixed and Mobile technologies
- Understand the expected future trends of the various Access Technologies – and the Internet itself



## Who should attend?

Technical and non – Technical professionals working in Telecommunications and Internet Industries.

## Course Duration

2 days which are an interesting mix of Slide Presentations, Interactive Sessions, Quizzes, Embedded Multi-Media Sessions and Case Scenarios.

## COURSE OUTLINE

### **MODULE ONE**

*An introduction into Digital Subscriber Line (DSL) technology giving an appreciation of basic concepts as well as a look at network architecture and key components.*

- Introduction
- Bandwidth and Speed
- Digital Speak
- Quadrature Amplitude Modulation (QAM)
- What is ADSL?
- How does it work
- Frequency Diagram
- ADSL Architecture

- Key components and functions
- The Core Network
- The Central Office
- The Copper Wire Access Network
- The Customer Installation
- Customer Modem configuration
- Ethernet and Wi – Fi
- ADSL Capabilities and Limitations
- The Power of the Internet – Interactive Session

## MODULE TWO

*A more practical examination of how ADSL works including technical limitations, testing and troubleshooting. The future of the Internet.*

- The DSL Family
- The Need for Speed
- ADSL2 and ADSL2+
- Frequency Diagrams
- ADSL v ADSL2 v ADSL2+
- Capabilities and Limitations
- Bits and Bytes
- DSL Testing
- DC Voltage
- Upstream and Downstream Speeds (ATM)
- The decibel (Db)
- Attenuation (and distance) limits
- Signal Noise Ratio (SNR) limits
- Ping Test
- Speed Test
- DSL Troubleshooting
- The Future of the Internet – Interactive Session

## MODULE THREE

*An appreciation of alternative Broadband Access Technologies (Fixed and Mobile), capabilities and limitations, trends and forecasts.*

- Cable Broadband
- Satellite Broadband
- Principle of Fibre Optic Transmission
- Flavours of FTTX
- FTTH GPON
- Fixed Broadband Comparisons
- Mobile Broadband
- Mobile Broadband Comparisons
- Fixed V Mobile Broadband
- Future Broadband Access Trends
- Practical Workshop
- Review and Close

