

Fibre to the Home (FTTH) GPON

Course Introduction

This is an instructor – led two (2) day classroom training course which gives participants an intimate insight into the fascinating world of fibre optic digital – light transmission – in particular ‘Fibre to the Home’ technologies including the Next Generation Access (NGA) and Optical Distribution Network (ODN) concepts.

It explains the ‘customer – driven’ evolution from basic telecommunication services in the recent past to the vast and growing amount of personal and business services that are accessible today on the Internet.

The Course looks to the future of FTTH and investigates what new services are about to become available and accessible over FTTH (and other) connections.

Course Objectives

After attending the training, participants will be able to

- Understand the architecture, technologies and key components that make up an FTTH GPON
- Recognize the drivers behind the evolution from POTS to FTTH – from Copper Access to Next Generation Access (NGA)
- Appreciate the reasons why Fibre Optic cables are being regarded as ‘future – proof’
- Acknowledge the impact the Internet has had – and will continue to have – on our lives and how Fibre Optic technology will support it in the future.



Who should attend?

Technical Professionals, Project Managers, Supervisors and Managers working in the Telecommunications Industry

Course Duration

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

COURSE OUTLINE

DAY ONE: MODULE 1: Introduction and Background

A look back at some of the earlier telecommunications technologies and systems and how the growth and popularity of the Internet is changing the telecoms landscape.

- Introduction
- Why is the deployment of FTTH technology so important right now?
- Plain Old Telephone Services (POTS)
- Copper Access Network
- Circuit Switching V Packet Switching
- Digital Speak
- The History of the Internet
- TCP/IP
- OSI Reference Model
- Overview of Fixed Broadband Technologies
- Capabilities and Limitations
- Attenuation, Distance, SNR and Latency
- Overview of Mobile Broadband Technologies
- Capabilities and Limitations
- Not 'future – proof'

DAY ONE: MODULE 2: Fibre Optics and FTTH Architectures

Module 2 concentrates on FTTH technologies - in particular the 'Gigabit Passive Optical Network (GPON)' method of connection within the Access Network

- Consumer Demand for Speed
- Basic Transmission Principles of Fibre Optic Cables
- Triple Play Services
- Next Generation Access (NGA)
- Optical Distribution Network (ODN)
- Flavours of FTTH
- Fibre to the Home (FTTH) Architectures
- P2P v P2MP Comparisons
- Advantages of GPON
- TDMA, Broadcast and WDM Technologies
- Loss Budgets
- FTTH GPON – Key Components
- Central Office
- Optical Distribution Network (ODN)
- Fibre Distribution Alternatives
- Cable Handling
- FTTH v Fixed Broadband Comparisons
- 'Future – Proof'

DAY TWO: MODULE THREE: CUSTOMER EXPERIENCE

Module 3 focusses on Internet services (e.g. triple play) and standards

- How has the Internet been changing our lives?
- Customer Installation
- High Speed Internet (HSI), VoIP and IPTV
- IPTV v Traditional TV
- Other Services
- MTBF and Quality of Service
- The WOW Factor
- System Standards
- Case Studies and Scenarios

DAY TWO: MODULE FOUR: FTTH ENGINEERING

Module 4 gives a practical overview of tools, testers and techniques deployed in the installation / repair of an FTTH GPON connection

- Fibre Optic Health and Safety
- Safety Equipment
- The Importance of Cleanliness
- Contamination Types
- Key Tools and Test Equipment
- Visible Light Source (VSL) and Microscope
- Optical Time Domain Reflectometer (OTDR)
- Cable Splicing
- Cable Testing

DAY TWO: MODULE FIVE: A LOOK INTO THE FUTURE

Module 5 gives an insight into the future of FTTH and forecasts how the Internet is about to change our lives again in the future

- How will the Internet change our lives in the Future?
- Global FTTH and Broadband Trends
- Global Fixed v Mobile Internet Traffic
- Fibre Optic cables – other uses
- LAN, MAN and WAN
- Future Associated Technologies
- Future Consumer Applications
- Smart Homes
- Smart Cities
- Practical Workshops
- Review and Close

