

DCT Advanced Fibre Optics

Course Code: DCT -INFR - AFO

Duration: 2 Days

Overview:

DCT Advanced Fibre Optic course begins with a review of fiber optic theory, products, and procedures. Then you will focus on advanced skill development in three days of hands-on exercises that include preparing indoor, outdoor cabling and routing through splice closures, patch panels and splice trays, fusion and mechanical splicing, testing and troubleshooting optical links, setting up and calibrating an OTDR, performing a cable acceptance test, and measuring optical return loss and reflectance using an OTDR

Target Audience:

The course is for anyone who is interested in learning how to become a fiber optic installer.

Objectives:

- PON and ACTIVE Network Designs
- How TDM and WDM is used in FTTH Applications
- In-depth use of an OTDR for Testing and Troubleshooting Understanding Probable
- Faults in a Fiber System Attenuation, Return Loss, Back Reflection, Refraction
- Active/PON(FTTx) Qualification and Troubleshooting

Pre-requisite

- Those attending this course require basic understanding of network topology.
- Must have attended the DCT Structured Cabling Fibre Optics Course.

Testing and Certification

- Exam: DCT Structured Cabling Systems Installer
- Certificates :DCT Advanced Fibre Optic Certified Installer

Content:

- Introduction to Fibre Optics
 - What are Optical Fibres?
 - Optical Fibre Construction
 - Fibre Sizes
- Optical Fibre Transmission
 - Fibre optic transmission systems and data links
 - Transmitting and receiving devices
 - Transmission over different types of fibre
 - Electromagnetic Spectrum and Wavelengths
 - Fibre Optic Transmission Windows
- Fibre Optic Cable Types
 - Loose-Tube and Tight Buffered
 - Simplex and Duplex
 - Distribution and Break-out cables
 - Indoor/Outdoor
 - Self-supporting
 - Armoured
- Fibre Splicing and Terminating
 - Mechanical and Fusion Splicing
 - Types of fibre connector
 - Hot and Cold Cure Termination
 - Mechanical Termination
- Passive Optical Networks (PONs)
 - Optical Line Terminal (OLT)
 - Optical Network Terminal (ONT)
 - Optical Network Unit (ONU))
- Signal Degradation
 - Dispersion
 - Attenuation
 - Scattering
 - Absorption
 - Factors Affecting Splice Points
- Designing Fibre Optic Cabling in the Local Area Network
 - Fibre in the LAN
 - Channel Classifications
 - Channel Attenuation
 - Optical Fibre Categories
 - Fibre Cable Classifications
 - Fibre Channel Lengths
 - Optical Fibre Applications
 - Fibre Cabling Design
 - Fibre in the Work Area
- Fibre Optic Safety
 - Chemical Hazards
 - Optical Hazards
 - Fibre Fragments
 - Environment
 - Safety for Everyone
- Fibre Optic Cable Installation
 - Conduct a thorough site survey prior to cable placement.
 - Develop a cable pulling plan.
- Follow proper procedures.
- Do not exceed cable minimum bend radius.
- Do not exceed cable maximum recommended load.
- Document the installation.
- Fibre Optic Testing Methods
 - Pre-installation testing
 - Acceptance testing
 - Configuration testing
 - Preventive maintenance testing
- Fibre Optic Testing Equipment's
 - Types of test required
 - Flashlight and Visual Fault Locator
 - Fibre Microscope
 - Attenuation testing using Light Source and Power Meter
 - Channel Attenuation Calculation
 - Optical Time Domain Reflectometer
- Fiber Troubleshooting
 - Verifying the problem.
 - Isolating the source of the problem.
 - Repairing the problem.
 - Testing the repaired system to ensure that it functions correctly.