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Fibre Optic Technician (FOA Certified)

COURSE DESCRIPTION:

The Certified Fibre Optic Technician (CFOT) course combines hands-on training with theoretical knowledge to provide the essential skills required for working with modern fibre optic networks. This internationally recognised certification provides a strong foundation for anyone working in, or aspiring to work in, the fibre optic industry.

Participants complete three modules covering fibre optic fundamentals, installation and termination techniques, and fibre optic testing. To achieve certification, participants must demonstrate competency in practical exercises and successfully complete the final examination.

WHO SHOULD ATTEND:

Fibre optic technicians, installers, engineers, technical support staff and industry professionals seeking foundational knowledge and internationally recognised certification in fibre optic technology.

SOME COURSE BENEFITS:

- Internationally recognised fibre optic certification
- Strong foundation in fibre optic technologies and standards
- Hands-on experience with fibre installation, termination and testing
- Improved troubleshooting and maintenance capability
- Exposure to advanced fibre optic concepts and network applications

+61 3 9381 7888
INFO@COVERTEL.COM.AU
114 BAKEHOUSE ROAD, KENSINGTON VIC 3031
AUSTRALIA
PO BOX 553, NORTH MELBOURNE, VIC 3051
AUSTRALIA
WWW.COVERTEL.COM.AU

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COURSE OBJECTIVES:

Participants will gain the knowledge and skills required to:

- Understand the fundamentals of fibre optic technology and transmission
- Identify fibre optic cable types, components and standards
- Safely install and handle fibre optic cabling systems
- Perform fibre optic splicing and connector termination
- Conduct fibre optic testing using industry-standard equipment
- Troubleshoot fibre optic network issues and faults
- Understand OTDR operation and fibre network performance testing

FORMAT:

3-day interactive classroom training including theory sessions and hands-on practical exercises.

Maximum attendees: 10 per course.

CONTENT:

Module 1 – Introduction to Fibre Optics (Day 1)

The Basics

- Data, binary, bits and bytes
- ASCII, speed and latency
- Fibre optic components and standards

Fibre Optic Standards Bodies

How Optical Materials Work

- Properties of light

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- Refraction index
- Snell's Law
- Total internal reflection

Fibre Optic Manufacturing

- Manufacturing processes
- Impurities, reflection, scattering and loss

Physical Specifications

- Geometry
- Attenuation
- Bandwidth

Optical Fibre Specifications

- Singlemode and multimode fibres
- ITU and EIA variants
- OM1, OM2, OM3, OM4, OM5 and OS1/OS2 specifications

Optical Handling & Safety

- Working with lasers
- Identification of laser hazards

Fibre Optic Links

- Electrical to optical conversion
- LEDs and laser transmitters
- Receivers and power budgets
- Point-to-point and point-to-multipoint links
- Media converters and wavelength use

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Fibre Optic Cable Types

- Internal and outdoor cables
- Indoor/outdoor cables
- Breakout cables
- Patch cords and pigtails

Fibre Distribution Systems

- Fibre Distribution Hubs (FDH)
- Passive Optical Network (PON) distribution

Fibre Installation

- Internal cabling systems
- Outside plant aerial installation (ADSS, figure 8, slotted core)
- Underground installation and ducting systems
- Air blown fibre systems

Optical Fibre Distribution Frames (OFDF)

- Cross-connect systems
- Fusion splicing
- Circuit management

Connectors in Outside Plant Environments

- Connector specifications
- Reflection and loss
- Cleaning and troubleshooting

Installation Methods

- Single-ended installation
- Mid-point installation
- Ducting, pulling and blowing

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Manholes and Joint Closures

- Splice trays and fibre management
- Closure types and configurations

FTTX Networks

- Ethernet Final Mile (EFM)
- Passive Optical Networks (PON)
- WDM-PON developments

PON, GPON & O-LAN

- TDM and WDM
- Splitters, amplifiers and ROADM

Module 2 – Fibre Optic Cable Jointing & Termination (Day 2)

Fibre Optic Tools

- Jacket preparation
- Fibre cutting and cleaving
- Fibre identification and marking

Practical

- Cable and enclosure preparation

Fibre Optic Termination & Splicing

- Connector types
- Factory-made connectors
- Field-installable connectors
- End-face inspection and cleaning

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Connector Termination

- Field-installable connectors
- Splice-on connectors

Splicing Procedures

- Fusion splicing
- Mechanical splicing
- Environmental considerations
- Fibre preparation and cleaving
- Splice trays and fibre management

Module 3 – Fibre Optic Testing & Measurement (Day 3)

Units of Measurement

- Relative and absolute measurements
- dB and dBm

Transmission Electronics & Power Budgets

- Link loss calculations
- Determining transmission reach
- Use of attenuators

Installation Testing & Documentation

- Light sources and power meters
- Measuring gain and loss
- Commissioning documentation

Wavelength Selection

- Multimode and singlemode testing wavelengths

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Determining Link Capability

- Continuity testing
- Attenuation testing
- Length and splice loss

Fibre Optic Test Equipment

- Video inspection scopes
- Light sources and power meters
- Live fibre identifiers
- Visual fault locators

Connector Troubleshooting

- Visual inspection
- Contamination identification
- Cleaning procedures

Fibre Link Troubleshooting

- Benchmark testing
- Multi-wavelength testing

OTDR Operation

- Time domain reflectometry
- Properties of light
- Reflection, absorption and loss

OTDR Troubleshooting

- Dead zones
- Connector and splice identification
- Power loss and gain events
- Launch cables and test leads

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- Dynamic range, resolution and ghost events

Practical

- Fibre optic testing exercises

CFOT certification exam completed at the end of Module 3.

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